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Montana Outdoors

November–December 2007

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The need to "git out amongst 'em"

Meet the perfect duck hunting partner

Easy recipes for venison's toughest cuts

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Montana Outdoors

NOVEMBER–DECEMBER 2007

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8 Venison Alchemy

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WONDERFOWL Hunting holds fascination for people of all ages. On page 22, writer John Madson examines the metaphysics of an activity that nonparticipants have trouble comprehending and even participants can hardly explain. Photo by Donner Bryan.

FRONT COVER FWP says Montana needs to increase its cow elk harvest. Learn why on page 14. Photo by Donald M. Jones.

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The outfitter option

The article in your most recent issue entitled "Moving Meat" (September–October) was long overdue. Most hunters approach a hunt all moon-eyed and don't realize the responsibilities involved. I was lucky enough to make a successful elk hunt in the Bob Marshall Wilderness with an outfitter who knew the ropes. His experience was well worth the money.

Nick Debes
Houston, TX

Snowboard meat mover

Regarding your recent article "Moving Meat": I have devised a contraption that really works for retrieving game. I call it my "Tag Along Tugger." I built it one winter after finding myself far downhill from my truck with a large buck. It consists of a 3 hp lawnmower engine and a boat winch mounted on a snowboard with a loop handle and engine control. I also usually incorporate a small plastic sled to load the animal into. I pull the Tugger behind me to the downed animal, fasten the animal to the Tugger or load it in the sled, which is tied to the Tugger, and then connect the 100-foot-long cable to a tree or other anchor point. Then I start the engine and walk with the Tugger and animal, guiding as I go until reaching the anchor point, repeating the process until I reach my destination.

GERALD W. HURST

The device can't be ridden, so it gives the hunter no advantage over the game. I still enjoy hunting afoot, and this gadget gives me the peace of mind that I can retrieve the game I kill in a sportsmanlike manner. If any of your readers would like to learn how to build a Tugger, I'd be happy to show them the details.

Gerald W. Hurst
Marion

Mr. Hurst's address is:
155 Wright Way, Marion, MT 59925

Travois transport

I grew up in Montana and hunted a lot in the late 1950s and early '60s. For most of us poor folk, dragging the game out on a travois was the preferred option.

A travois is easily built on site. Find two small trees of equal length, about 10 to 15 feet long, and some smaller cross pieces. The two trees should be about 2 to 3 inches thick at the base. Lash the thin ends together about 2 feet from the ends and spread the thick ends to allow you to stand between them. Lash one or more cross pieces across, beginning about 4 or 5 feet from the thick ends. Lash the meat on top of the travois with most of the weight near the thin ends. Sling your rifle over your shoulder, stand between the thick ends, and drag away. Add shoulder ropes if you need more support.

When you get tired you can easily set the rig down for a rest. It is important not to have the thin ends of the trees too wide apart or they won't follow the trail well. The thick ends should be just wide enough so your arms hang down naturally for most comfort.

Michael Goodwin
Gales Ferry, CT

TOM DICKSON

"Elk camp just ain't the same ever since Karl brought that espresso machine."

Her husband's lips are sealed

We just love getting *Montana Outdoors*. I smiled while reading John Barsness's article "Secret Spots." Years ago, whenever anyone asked my husband where he got that great buck, he would simply reply, "In the shoulder." This also applied to fish, for which he would reply, "In the lip." After a while, people stopped asking. Hurray for secret lakes, streams, and bush!

Jessie Wick
Carlton, MN

Hawaii's tough cows

In your September–October issue under "Natural Wonders," a question was asked about animals eating cactus. One of your staff members responded in part by saying, "I have even heard that if the spines are burned off, cattle will eat them." During a two-year period when I lived in Hawaii, I learned that ranchers on the island of Maui and other islands imported cactus some years ago and planted it in their pastures to feed cattle. I actually witnessed cattle eating cactus growing quite heartily on the mountainsides, and apparently the ranchers were making no attempt to burn the spines. Incidentally, we visit your fine state nearly every year to enjoy the great outdoors and wonderful scenery. Your magazine is a welcome sight in our mailbox.

Conway Narby
Wenatchee, WA

Good, but could be better

Dave Carty's excellent article "Come on in, the Water's Fine" in the May–June issue reminded me of how often I use fishing access sites for float trips, fishing, and waterfowl hunting. I'm usually very pleased with the facilities at the various sites, except for some of the boat ramps. Several on the Yellowstone and Missouri rivers are too short and are pointed directly into the current. If we could eliminate the steep dropoffs at the underwater ends of the ramps and angle the ramps downstream, they would be easier and safer to use.

Frank Stewart
Bozeman

A great tradition continues

New state funding will enable FWP to purchase more recreational sites such as Brush Lake State Park, a prairie oasis located in eastern Montana.

MONTANA FWP

During the past 70 years, many Montana leaders have had the foresight to acquire state parks, wildlife management areas, fishing access sites, and other public lands across the state. Wild Horse Island, wildlife management areas along the Rocky Mountain Front, and fishing access sites up and down the Yellowstone River are examples of resources we all enjoy today thanks to some forward-thinking initiatives carried out many years ago.

During the 2007 legislative session, lawmakers continued that tradition by appropriating $10 million from the state general fund, part of Governor Schweitzer's Square Deal for Montanans, for one-time purchases of state parks, fishing access sites, and areas with vital access to other public lands. The governor and other elected officials recognize that land prices are skyrocketing and key parcels the state does not acquire now may soon become priced beyond reach.

FWP is now looking for new recreation land acquisitions. Among the criteria are that the sites should be unique and located close to population bases, have local support, and contain wildlife habitat. We are also looking for sites that give the most value for the dollar.

For example, we are getting close to acquiring what will be a new state park near Culbertson along the Missouri River. The 5,000-acre ranch is a wildlife haven, containing biologically rich grasslands, river bottomlands, and rolling hills covered in juniper and ponderosa pine. Once we acquire the area, we plan to provide a campground where families can stay in summer and hunters can set up base camp during fall. The spectacular scenery and rolling landscape offer great potential for a trails network. Fishing and boating access to the Missouri River is another plus. We might also retain part of the irrigated agricultural land currently in production.

Years ago, this department acquired land if it had one strong benefit, such as providing good winter big game range or a site to launch boats. Acquisitions today have multiple benefits, such as habitat for both game and nongame species. They also provide a wider diversity of recreational opportunities, including camping, hiking, and bird watching along with traditional hunting and fishing. What's more, we are increasingly teaming with groups such as the Mule Deer Foundation, Rocky Mountain Elk Foundation, Ducks Unlimited, Pheasants Forever, and various state and federal agencies to put into public ownership lands that a single group could not acquire on its own.

Public lands are one of the greatest legacies any conservation-minded citizen, agency, or state can leave to future generations. I hope that in years to come, Montanans and visitors will look back at 2007 as a year when the state continued its great tradition of funding new recreational and wildlife sites, and that those public lands provide the same great benefits that past acquisitions are providing today.

—M. Jeff Hagener, *Director, Montana Fish, Wildlife & Parks*

NATURAL WONDERS

ILLUSTRATION BY PETER GROSSHAUSER

***Q.** I've heard of a spot in Glacier National Park where, if you stood there and cried, your tears could end up in the Pacific Ocean, Gulf of Mexico, or Hudson's Bay. Can that be possible?*

A. Yes, at a spot called Triple Divide Peak, the continent's hydrological apex. North America's three major river systems begin on this one mountain. Precipitation falling on the mountain's north face eventually ends up in Canada's northeast-flowing Saskatchewan and Nelson rivers; water on the west face flows down to the Flathead then Clark Fork then Columbia rivers; and water on the east face goes to the Marias then Missouri then Mississippi rivers.

***Q.** Recently our family hiked through Custer National Forest near Red Lodge. Is that the same national forest we drove through when in South Dakota's Black Hills?*

A. Yes. Custer National Forest calls itself "the most diverse and widespread forest in the whole National Forest Service system." It has three separate districts stretching 360 miles from the northwestern corner of South Dakota to the northeastern corner of Yellowstone National Park. The famous Derby Fire of 2006 burned in the northwesternmost corner of Custer National Forest, about 15 miles south of Big Timber.

No sunbathing, but still plenty to do

Just because geese are heading south doesn't mean Montana's state parks have closed for the year. Most of these scenic and historic sites are open year-round, and late fall and early winter are great times to visit. Wildlife viewing opportunities are especially good this time of year because animals move about more freely due to the lack of human visitors. Some suggestions:

Ice fish on Hauser (Black Sandy Beach) or Cooney reservoirs: Make sure the ice is at least 4 inches thick before you walk out onto either of these two great ice-fishing reservoirs.

Take a fall stroll through the past: Elkhorn, Fort Owen, and Bannack state parks are especially eerie when November winds bang shutters and a skiff of snow dusts weathered wooden buildings. Afterwards, ponder your visit over a warm cup of cocoa at the nearest cafe.

Skate Flathead Lake: Winters haven't been cold enough in recent years, but occasionally bays of the massive natural lake freeze, creating the state's biggest skating rink. Ice needs to be at least 4 inches thick for skating, so check for flags and other notices of unsafe conditions.

Learn about Indian culture where it's warm: Vist the entertaining and informative visitor center exhibits at Chief Plenty Coups, First People's Buffalo Jump (previously Ulm Pishkun), Makoshika, and Lone Pine state parks.

Look for river otters: The lively animals are occasionally spotted by hikers walking along the three forks of the Missouri at Missouti Headwaters State Park.

For more information on these and other Montana state parks, visit fwp.mt.gov.

ISTOCKPHOTO

Early ice is often the best ice for winter fishing at Cooney and other Montana state parks because the fish are still active. Be sure ice is at least 4 inches thick before walking on it and at least a foot thick before driving.

Motors rumble, ranchers and hunters grumble

As the number of all-terrain vehicles (ATVs) and other off-highway vehicles (OHVs) in Montana has grown in recent years, so have complaints by many landowners and hunters about illegal and irresponsible use.

A recent survey by the Montana Wildlife Federation (MWF) found that the number two concern landowners have with public hunting (second to hunters not asking permission) is improper use of motorized vehicles. Landowners also listed ATVs as among the top reasons for not allowing public hunting on their property. According to a new nationwide survey by the Izaak Walton League of America, 83 percent of state wildlife managers have seen resource damage to wildlife habitat caused by OHVs.

OHV registration in Montana more than doubled from 23,000 in 2001 to 47,000 in 2006.

In 2006, the MWF petitioned the Montana Fish, Wildlife & Parks Commission to adopt recommendations the group believes would reduce the "negative impacts from improper use of ATVs while hunting." Among the recommendations: Restrict ATVs during hunting season to standard vehicle roads except when retrieving downed big game, and require that ATVs be registered as motor vehicles and display an oversized license plate to aid in identification.

The recommendations were opposed by a new motorized vehicle group called the Treasure State Alliance (TSA). In response to the wildlife federation petition, TSA executive director Craig Osterman wrote in a letter to the commission that while "the vast majority of our members share some of MWF's concerns regarding lawful and ethical use of ATVs," the organization believes that working out issues through federal land travel management plans and enhancing enforcement of existing regulations and rules is a better approach.

Though the commission denied the petition, commissioners said they agreed with the concerns raised by the MWF. "The department is working hard to address the commission's concerns and work with OHV riders so that responsible users aren't penalized for the behavior of a few bad apples," says Ron Aasheim, chief of the department's Communications and Education Division.

Several other states are increasing ATV restrictions and regulations. Pennsylvania bans any loaded firearm within 25 feet of a vehicle. Minnesota requires that rifles be unloaded and in a hard case when on an ATV. Idaho recently adopted rules restricting

ATVs in certain areas to established roadways capable of travel by automobiles.

With only a few exceptions, operating vehicles "cross country" on public lands in Montana is illegal. The regulation protects soil, vegetation, and wildlife. In addition, Montana and federal agencies have established several guidelines for ethical ATV use. A survey by FWP of OHV users statewide in 2006 showed that many follow and agree with state and federal guidelines for vehicle use. However, a substantial number of OHV users, nearly 60 percent in some cases, ignore certain guidelines, such as not traveling off legal routes to retrieve harvested game.

Montana hunting and fishing: the numbers game

Is the number of hunters in Montana increasing? It may seem that way, but in fact the numbers have been flat over the past decade. That's just one finding from a recent FWP report on hunting and angling use and expenditures by residents and nonresidents. The information was compiled by the department's Responsive Management Unit, which gathers and analyzes socioeconomic trend data on human interactions with fish, wildlife, and state parks. The information below was compiled from hunter harvest and angling pressure reports. Other findings include:

- Resident hunters cumulatively spend ten times more days afield each year pursuing deer than they do chasing pronghorn.
- Nonresidents spend on average four times more per day on elk hunting than what residents spend.
- Both nonresident and resident hunters spend more per day on elk hunting than they do on deer hunting.
- Nonresidents in Montana spend nearly as much per day hunting upland birds and waterfowl as they do hunting elk and more than what they spend hunting mule and white-tailed deer.
- Hunting is big business, with expenditures from resident and nonresidents totaling more than $250 million per year.

Deer hunters in Montana spend a total of more than 1 million days afield each year.

DUSANSMETANA.COM

License year*	Resident hunters	Nonresident hunters	Total	Resident anglers	Nonresident anglers	Total
2005	188,299	43,637	231,936	223,709	155,788	379,497
2004	190,034	42,835	232,869	222,634	156,618	379,252
2003	190,604	41,672	232,276	223,580	159,794	383,374
2002	189,455	37,910	227,365	219,999	163,109	383,108
2000	205,395	74,332	279,727	228,782	146,250	375,032
1999	206,641	77,174	283,815	231,178	153,628	384,806
1998	204,949	75,433	280,382	227,924	149,744	377,668
1997	205,126	72,585	277,711	225,388	142,090	367,478
1996	211,750	72,947	284,697	230,202	141,894	372,096
1995	216,516	74,259	290,775	236,372	146,701	383,073

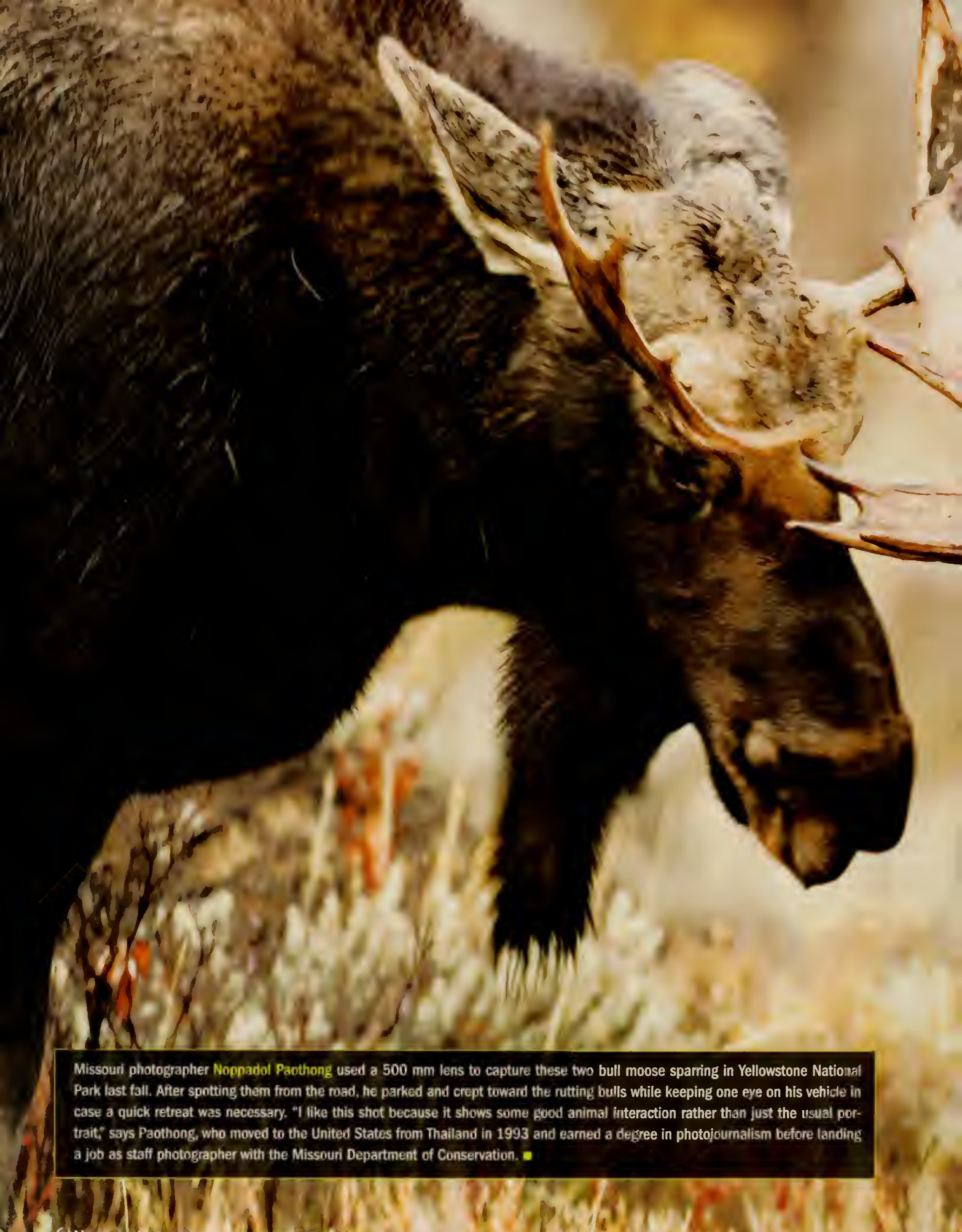
*The 2001 license sales data is not included because that was the year FWP adopted its Automated Licensing System (ALS), and the changeover prevented accurate 2001 sales tracking.

Source: Montana FWP

Days afield	Elk	Deer	Pronghorn antelope	Waterfowl	Upland game bird	Black bear	Moose	Bighorn sheep	Mountain goat	Fishing streams	Fishing lakes
Resident	710,348	902,501	84,829	110,559	367,847	94,088	5,916	1,937	1,721	1,110,357	850,301
Nonresident	126,350	135,671	14,123	47,382	82,655	6,678	137	308	112	620,637	161,236
Total	836,698	1,038,172	98,952	157,941	435,905	100,766	6,053	2,245	1,833	1,730,994	1,011,537
Expenditures											
Resident total*	$54M	$53M	$5M	$5M	$22M	$3M	$1M	$500,000	$430,000	$47M	$51M
Resident per day†	$75.52	$58.53	$54.75	$48.13	$58.85	$27.24	$221.37	$259.44	$249.57	$42.10	$60.23
Nonresident total*	$45M	$22M	$3M	$14M	$29M	$1M	NA	$128,000	NA	$136M	$15M
Nonresident per day†	$354.94	$162.37	$205.79	$301.29	$348.25	$191.13	NA	$414.54	NA	$219.76	$94.97
Total expenditures*	$98M	$75M	$8M	$20M	$50M	$4M	$1M	$630,000	$430,000	$183M	$67M

*Expenditures include gas, food, lodging, and equipment. Dollars rounded to the nearest million or thousand.
†Per day expenditure is in dollars and cents.

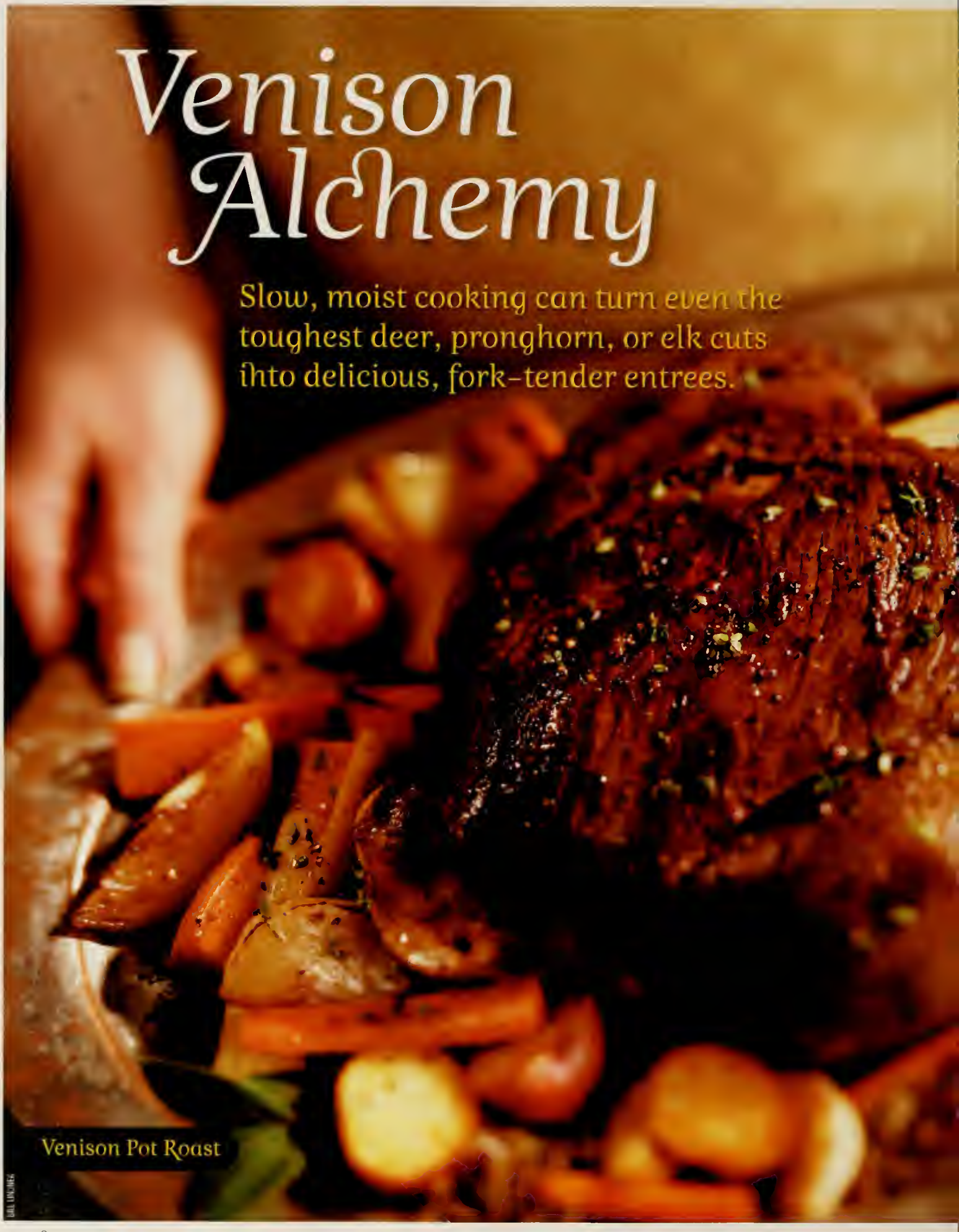
Source: Montana FWP



Missouri photographer Noppadol Paothong used a 500 mm lens to capture these two bull moose sparring in Yellowstone National Park last fall. After spotting them from the road, he parked and crept toward the rutting bulls while keeping one eye on his vehicle in case a quick retreat was necessary. "I like this shot because it shows some good animal interaction rather than just the usual portrait," says Paothong, who moved to the United States from Thailand in 1993 and earned a degree in photojournalism before landing a job as staff photographer with the Missouri Department of Conservation. ■

Venison Alchemy

Slow, moist cooking can turn even the toughest deer, pronghorn, or elk cuts into delicious, fork-tender entrees.



Venison Pot Roast

By Tom Dickson

While visiting family in the Twin Cities several years ago, my wife, Lisa, and I treated ourselves to dinner at a swanky new restaurant in downtown St. Paul. I ordered the Braised Moroccan Lamb Shanks. The chunks of fatty lamb slid off the bone into a succulent sauce of onions, tomatoes, pureed figs, and a mixture of nutmeg, cinnamon, and other fragrant spices. Only Lisa's withering scowl kept me from lifting the platter and licking it clean.

On the plane ride home I thought of how braising and stewing miraculously transform the toughest cuts of meat into tender morsels. I had discovered these slow-and-moist cooking techniques years earlier from Ken Geoff, a Twin Cities chef nationally known for his game recipes. Deer, elk, and other big game animals, he explained, are composed of two fundamentally different cuts of meat: the tender and the tough. Each needs to be cooked with a completely different method.

Meat is muscle, and the muscles an animal uses less vigorously, like the loin and rump, have closely grained texture. Lacking tough, internal tissue, these naturally tender cuts are best cooked quickly at high temperatures over dry heat and generally served medium rare. Think grilled steaks or pan-seared loin chops.

Muscles an animal constantly puts in motion and use—the neck, shoulders, and legs—are marbled with connective tissue (known as collagen) and have a coarser grain. When grilled or pan-fried at high heat, that tough tissue seizes up and turns a shoulder roast, for

Better than burger: Getting to know the tough cuts

Tough cuts: Cook slowly, with moist, low-temperature heat.

Tender cuts: Cook fast, with dry, high-temperature heat.

Rump

Loin

Hind shanks: Braise shanks with the bone in, slice the shank crosswise into 3-inch-thick segments, or fillet the meat off the bone.

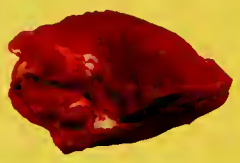
Ribs: Fillet rib meat out from between the ribs. The tough tissue surrounding the meat breaks down when cooked slowly.

Brisket: Like the ribs, these flat slabs of meat are surrounded by tough tissue that melts into a delicious, velvety gelatin when braised.

Neck: The neck makes a terrific pot roast. Use a smaller animal such as a juvenile or doe deer or pronghorn.

Front shanks: Same as the hind shanks, you can braise these with the bone in or out.

Shoulder: Braised whole, this is the classic pot roast cut. Your grandma traditionally made this with a beef shoulder chuck roast.



MEAT CUT PHOTOS FROM ALBERTA WAPITI PRODUCTS CO-OP

MONTANA OUTDOORS

TOM DICKSON

example, into what tastes like a cooked catcher's mitt. Yet when cooked slowly with moist heat at low temperatures—think Grandma's pot roast—the collagen melts into a flavorful, gelatinous goo that lubricates the fork-tender meat. "Shot through with gelatin, the meat melts on your tongue," writes Daniel Boulud, a French chef and author of *Braise: A Journey Through International Cuisine.* "Thickened with gelatin, the sauce clings and shines."

Both braising and stewing are slow, moist, low-temperature cooking methods that tenderize tough cuts. Stewing calls for using small meat chunks completely covered in a simmering liquid. Braising is for larger cuts such as a shank or a shoulder roast and requires less liquid, which only partially covers the meat. Stews are generally served in their cooking liquid, while braised meats are removed and a sauce or gravy is made with the residue liquid.

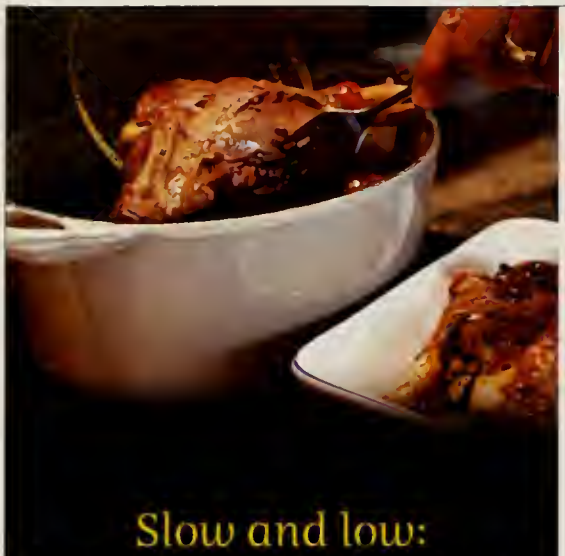
For years I had been making venison stews and pot roasts to great acclaim from friends and family. However, I had never considered tackling the shanks. Usually I filleted them like fish, saving the tiny strips of meat for sausage and tossing the hard, opaque casings in the trash. After my lamb dinner I wondered if I could create something similar with deer or pronghorn shanks. I knew nothing of Mediterranean cooking, but I thought a recipe in the *Joy of Cooking* might work: braised lamb shanks with Middle-Eastern spices. Prepared with the lean venison, the dish was not nearly as rich as with lamb shanks, but nevertheless the meat was succulent, tender, and infused with spices, wine, and tomato. That and other recipes have transformed what I long considered lesser cuts of venison into ones that have become some of our family's favorite meals.

If you don't butcher elk, deer, or pronghorn yourself, ask your meat processor to label the shoulder roasts separately, trim the shank meat off the bone and label it, and save and label the entire neck roast from pronghorn and deer fawns and small does. That way you will know which cuts to cook hot and fast and which to cook slowly with moist heat at low temperatures.

Tom Dickson is editor of Montana Outdoors.

ISTOCKPHOTO

Mediterranean Venison Shanks



Slow and low: braising and stewing basics

Pot

The ideal pot is a heavy Dutch oven with a tight-fitting lid or an enamel-coated cast iron casserole dish. These pots allow you to brown the meat in the container. Crock pots work well, but the meat must be browned in a separate pan beforehand.

Heat

Braise or stew on the stove top at low heat, keeping the liquid at a slow simmer, stirring every half hour or so. Even better is to cook the dish in the oven at 275° or 300°, which provides more uniform cooking temperatures.

Browning

This first step doesn't "seal in the juices" as is commonly thought; it gives the meat a dark brown outer color and imparts a toasty caramelized flavor to the dish. The meat can be dredged first in flour seasoned with salt and pepper. The flour absorbs more cooking oil, which adds flavor, and helps thicken the liquid as the dish cooks. The trick to browning is to make sure the meat sizzles but does not burn.

Add flavor

The next step in many recipes is to remove the meat and add chopped carrots, onions, and various herbs and spices. This creates a more flavorful braise or stew.

Simmer

Finally, a liquid is added, typically beer, wine, bourbon, broth, or water. The essential element of stewing or braising is to *simmer* the meat in the liquid for several hours at a low temperature. If the liquid boils, the meat may tighten into a knot as tough as a baseball.

PHIL AARONSON

Elk Stroganoff

ISTOCKPHOTO

Venison Bourguignonne

(I prepare this wine stew using all the tough pieces I trim off the shoulder and lower haunches. It's based on the Beef Bourguignonne recipe from the Joy of Cooking, *with some alterations. This wonderfully rich and luscious dish tastes even better if you can cook it ahead of time and let it sit for a few days.)*

2 pounds boneless venison shoulder meat

Place meat in a large glass or ceramic bowl and add:

2 C. dry red wine — **¼ C. olive oil**
1 carrot, peeled and chopped — **1 onion, chopped**
1 clove garlic, chopped — **1 bay leaf**
2 T. chopped fresh parsley — **½ t. dried thyme**
1 t. pepper — **½ t. salt**

Stir to combine and coat the meat. Cover and marinate in the refrigerator for 1 hour to 24 hours, turning the meat occasionally. Drain the beef and pat dry. Strain the marinade and reserve it and the vegetables separately. Heat a large Dutch oven over medium-high heat. Add and brown:

4 oz. bacon, diced

Remove the bacon and place on paper towels to drain. In the bacon grease (if there is not at least 2 tablespoons, add vegetable oil), add the venison in batches and brown on all sides. This will likely require at least three batches. Don't overcrowd the pan or the meat will simmer and not brown—and brown (though not burned) is what you want at this stage. Remove meat and add the reserved vegetables and cook until lightly browned, about 5 minutes. Stir in:

2 T. flour

Cook, stirring, 1 minute. Stir in the marinade, then return the venison and bacon to the pan. Bring to a boil. Reduce heat to low and cook, covered, until the meat is fork tender, about 2 hours. (Another option is to preheat the oven to 275 degrees when browning the meat, and then put the pot in the oven for 2 hours). Add:

8 oz. mushrooms, quartered.

Cover and cook 20 minutes. Add:

¼ cup chopped fresh parsley — **Salt and pepper to taste**

Serve with egg noodles, rice, or boiled potatoes.

Doe Neck Pot Roast

(This produces the most flavorful venison I've ever tasted. Unlike many pot roast recipes, mine calls for braising the meat in browned, finely chopped vegetables, which I then puree to make the gravy. Add larger vegetables during the last few minutes to keep them from becoming mushy. This recipe works best with smaller deer or pronghorn necks as well as the traditional shoulder roasts from any big game animal.)

Preheat oven to 275°.

Season with salt and pepper:

Deer or pronghorn neck

Heat in large skillet or Dutch oven:

4 T. lard or vegetable oil

Add neck roast and brown on all sides, about 20 minutes.

Remove roast to a plate. Add:

2 C. finely chopped onions — **½ C. finely chopped celery**
½ C. finely chopped carrots

Cook vegetables, stirring occasionally, until they begin to color, about 5 minutes. Add:

1 C. beef stock or dry red wine

Bring to boil. Add:

1 bay leaf — **½ t. dried thyme**

Return roast to pan and cover. Make sure there is always at least 1 inch of liquid in pot and add more if needed. Cook in oven for 2 to 3 hours, removing and turning roast occasionally. Add:

1 C. carrots, cut into 1-inch pieces

Cook for 5 minutes. Remove roast and carrots and set aside while making the gravy. Pour pan liquid and finely chopped vegetables into a blender and puree for 3 minutes. Return to pot. Add cooked carrots and:

1 C. frozen peas

Bring to simmer. Meanwhile, the neck roast will have cooled enough to pick the meat off the bone. Serve the meat and the vegetable gravy over egg noodles or boiled potatoes.

Mediterranean Venison Shanks

(This derivation of the Joy of Cooking*'s braised lamb shanks recipe is a bit sweeter and spicier, and I add fat to compensate for the lean venison shanks. The recipe calls for a wild mix of spices, but don't get nervous: There's nothing here you can't find at your local supermarket. Unlike lamb shanks, deer and elk shanks are too large to fit in a pan. I cut them in pieces or fillet the shank meat off the bone before cooking. Don't worry that the meat is encased in hard tissue casings. The slow, moist-cooking method will melt the tissue off the meat and produce tender chunks of savory venison.)*

Preheat oven to 275°.

2 deer shanks or 1 elk shank

Season meat with:

1 t. salt — **½ t. pepper**
½ t. ground ginger — **½ t. paprika**

Mix in a bowl and set aside:

1 t. dried or 1 T. fresh mint — **1 t. paprika**
1 t. ground coriander — **1 t. ground cumin**
½ t. black pepper — **¼ t. ground ginger**
pinch of ground cinnamon — **¼ t. ground allspice**

Heat in a Dutch oven or large cast iron skillet over high heat:

2 T. oil

Add half the shank meat and brown on all sides, about 5 minutes. Remove, add more oil, and brown the remaining meat. The smell of sautéed casing tissue is unpleasant but will disappear once braising begins. Add:

2 onions, thinly sliced — **2 T. chopped garlic**

Reduce heat to medium and cover and cook, stirring often, until onions are soft. Sprinkle with spice mixture. Stir well to coat onions. Add:

2 C. beef stock — **1 C. dry red wine**
⅓ C. tomato puree

Bring to boil. Return venison to pan, cover, and bake for 90 minutes. Add:

2 C. 1-inch carrot pieces — **1 C. dried figs, chopped**
2 C. diced, peeled butternut or Hubbard squash

Cover and bake 15 minutes more. Remove meat and vegetables. Add:

2 T. lemon juice — **½ t. cayenne pepper**
2 t. dried mint (or 3 T. of fresh) — **1 can garbanzo beans**

Pour sauce over meat and vegetables and serve over couscous (a delicious North African granular pasta available in most Montana grocery stores), white rice, or boiled potatoes. Top with a dollop of sour cream.

Venison Stroganoff

(Ken Geoff's version of the famous Russian stew is easy and delicious. Serve with warm bread for sopping up the flavorful sour cream gravy afterward.)

Preheat oven to 300°.

Mix:

Salt and pepper into 1½ C. flour

In seasoned flour, dredge:

1½ pounds trimmed shoulder meat, cut into ¾-inch cubes

Heat in a large cast iron pan or Dutch oven:

1 T. butter or light cooking oil

When butter or oil is foaming but not yet smoking, add coated meat in batches and brown on all sides, cooking roughly 2 minutes per batch. Remove meat from pan and add more oil and butter. Then add:

¾ C. thinly sliced onion

Saute 2 minutes until softened. Stir in:

1½ C. sliced mushrooms

Cook 2 minutes. Stir in:

1 T. tomato paste or ½ C. tomato puree
1½ C. beef stock or broth
Pinch salt and pepper

Add meat to pan. Add enough water to cover meat. Bring to boil. Cover with lid. Bake in oven 1½ hours. Remove from oven. Stir in:

3 T. sour cream — **2 T. butter**

Serve over egg noodles or mashed potatoes. Sprinkle with chopped parsley.

The Amazing Saga of

Montana's Elk

It begins with abundance, then turns to greed and waste, then continues with one of the most remarkable wildlife management success stories in North America. And the current chapter is perhaps most interesting of all.

BY SAM CURTIS

The restoration of its world-renowned elk population has been one of Montana's greatest wildlife management success stories. Over the past century wildlife managers, hunters, ranchers, and others have helped rebuild a population from only a few thousand animals to one now estimated at over 130,000. The elk recovery did not come easily. Scientists have had to learn much about the animal's biology, population dynamics, habitat needs, relations with predators, and responses to hunting. Hunters are continually being asked to comprehend new and increasingly complex hunting regulations and management proposals. And because elk know no boundaries, Montana stockgrowers bear the brunt of wide-ranging herds that can overgraze croplands, destroy haystacks, and trample fences. One of the greatest challenges to state elk managers today is balancing the needs and rights of the public in whose trust the state holds elk with those of the private landowners on whose property elk roam. Socioeconomic changes in recent years, such as the growing number of new landowners making their property off-limits to hunting, make that balance ever more difficult to strike.

Almost gone

The story of elk management in Montana starts with plenty of elk but no management. Historians estimate there may have been mil-

lions of the large ungulates in North America before Europeans arrived here. The westward expansion following Lewis and Clark brought fur traders, gold seekers, market hunters, and settlers, all of whom relied on wild game for food and profit. "By the time wholesale slaughter of bison had reached a peak in the mid-1870s, elk figured prominently in the harvest wherever it was available," writes Richard McCabe in *Elk of North America*. A bison hide at the time was worth $4, but an elk hide brought $7. Many professional hunters wasted no time with easily perishable elk meat, taking only the hide and "ivories" (tusk remnants found in the animal's upper jaw) and leaving the rest to rot. "Even as late as 1881, with bison and elk herds seriously diminished," writes McCabe, "more than 5,000 of these hunters and their skinners still plied their skills in Wyoming, Montana, the Dakotas, and southern Canada, the areas in which most remaining elk were confined."

By the mid-1880s, market hunting had eliminated elk from the plains and sharply reduced herd sizes in the mountains. Elk numbers reached a low point around 1910, when an estimated 50,000 or fewer existed in all of North America. About half were taking refuge in and around Yellowstone National Park, established in 1872, and in Jackson Hole, Wyoming (where the National Elk Refuge was later established).

Like bison before them, elk were vanishing before most people realized they were gone. Early pioneer legislators foresaw the impending tragedy and enacted territorial game laws as early as 1872. Yet "most people were unaware of these laws or simply ignored them," writes Allan Lovaas in *People and the Gallatin Elk Herd*. "The early game laws were a jumble, and not even the newspapers could agree whether or not elk hunting was legal in 1891." Still, it was a start.

DETROIT PUBLIC LIBRARY

DARK AGES The commercial exploitation of bison and elk peaked in the late 19th century, nearly exterminating both species.

Around the turn of the new century, the state legislature established the Montana Board of Game and Fish Commissioners, and Governor John E. Richards appointed W. F. Scott as the first state game warden. By 1905, Montana required resident hunting and fishing licenses, and two years later the hunting season was set from September 1 to December 1, with a limit of one elk.

Most hunters abided by the new laws, but those who didn't had little to fear. Each of Scott's eight deputy game and fish wardens, traveling by horse and train, oversaw a district averaging 18,000 square miles. What curtailed the illegal kill most was the lack of elk. In 1910, only 3,000 were thought to survive in all of Montana outside Yellowstone National Park.

Early years of restoration

The local and national response to the elk crisis grew rapidly. Citizen conservationists formed local sportsmen's clubs to raise funds and public awareness for restoring elk, and to push for further harvest restrictions and more enforcement. Out of this growing conservation movement came the state's first elk transplant, in 1910, from Yellowstone National Park to Fleecer Mountain near Butte. Over the next three decades, a total of 1,753 elk from the park, Jackson Hole, and the National Bison Range in Moise were transplanted to several dozen sites in national forests to bolster elk numbers and speed the process of dispersing the animals into suitable habitat. In 1913, Montana established the Sun River Game Preserve, the first of several set up during the next decade to provide places where elk were safe from hunters and could graze on forage without competition from livestock.

The combination of regulated hunting seasons, transplants, and preserves were all elk needed. Montana's population quickly grew to where the animals began overgrazing forage on some preserves and nearby private lands. For the first time in its short history, Montana was faced with a problem of having too many elk in some isolated areas. In 1937 Montana rancher Joe Greaves was acquitted of illegally shooting four elk that were feeding on his wheat crop. State laws resulting from the court case required the Fish and Game Department to assist landowners in reducing wildlife depredation losses. A few years later, however, after rancher C. R. Rathbone was arrested for killing elk damaging his property, the Montana Supreme Court ruled that landowners had to accept some depredation from elk and other

Writer Sam Curtis of Bozeman is author of several elk hunting books. Most of the information for this article came from the FWP 2005 Elk Management Plan, written by FWP wildlife research biologist Ken Hamlin, Bozeman.

TIMELINE: Elk in Montana

1800 — Lewis and Clark repeatedly mention "vast herds" of elk in their expedition journals.

1830–1860 — Demand for buffalo hides and tongues in the early 1800s quickly escalates to the large-scale slaughter of bison, and soon expands to include elk.

1870 — **1872:** Montana lawmakers establish the first closed season on big game, from February 11 to August 15 each year.

Slaughter of elk for hides and ivories reaches its peak in the 1870s.

1872: Yellowstone National Park is established.

1880 — **Mid-1880s:** Elk are extirpated from the plains, and numbers are sharply reduced in the mountains.

1889: Montana achieves statehood.

1890 — **1895:** The Montana Board of Game and Fish Commissioners is established.

1895: Montana hires W. F. Scott as the first state game warden.

wildlife. Caught between these two mandates was the Fish and Game Commission, which struggled to reconcile conflicting opinions among sportsmen, wildlife managers, and stockgrowers about what constituted suitable elk numbers and proper elk management.

While continuing to expand the elk range into new areas of the state, the Fish and Game Department decided to reduce conflicts between elk and ranchers in key areas by increasing the elk harvest and acquiring, from willing sellers, high-quality habitat that would keep elk from spending too much time on private lands. In 1940, the agency made its first significant purchase of big game winter range. Those 1,004 acres in the Little Belt Mountains were one of many acquisitions over the next half century that created a system of wildlife management areas, benefiting elk and other species, totaling more than 300,000 acres.

Enter the biologists

The year 1940 marked the beginning of another significant era in the state's elk management history: the hiring of Bob Cooney, Montana's first wildlife biologist. Previously, the Fish and Game Department consisted almost entirely of game wardens, who had their hands full enforcing game laws. Cooney and other wildlife biologists hired over the next decade established a scientific foundation to elk management based on monitoring populations, protecting and improving habitat, and adjusting harvest regulations.

In 1951, Montana's elk population was up to an estimated 40,000 and growing and expanding steadily. The increase was aided by bull-only harvest restrictions, which protected the cows that produced additional young elk each spring. By the early 1960s, elk were

ELK ON THE GO In 1910, the first transplant of elk from Yellowstone National Park was made to Fleecer Mountain, near Butte (right). By 1940, a total of 1,753 elk had been transplanted to 31 sites around Montana. Transplantation (below) of an additional 4,140 elk continued until 1970. The transplants have helped elk repopulate much of their former habitat, from an estimated 8,000 head in 1922 to roughly 130,000 to 160,000 today.

MONTANA FWP

MONTANA FWP

CHUCK & GALE ROBBINS

THE ELK PASTURES In 1947, Montana established the Sun River Game Range, which eventually became one of Montana's largest wildlife management areas. WMAs were originally established as winter range that forestalled elk from moving onto private pastures in late winter, helping to reduce conflicts between ranchers and wildlife.

1901: Montana Department of Fish and Game is established.

1905: A hunting and fishing license is required for Montana residents.

1910: Only 3,000 elk are thought to survive in Montana, and less than 50,000 total in all of North America.

1910: The first transplant of elk is made from Yellowstone to Fleecer Mountain near Butte.

1913: The Montana Legislature takes a major step in wildlife protection by designating the Sun River Game Preserve.

1922: Montana's elk population is estimated at between 7,500 and 8,000 head.

1928: Elk number about 10,900 in Montana.

1937: The Montana Legislature passes a law requiring the Fish and Game Department to help landowners suffering losses from elk and other big game.

1940: The department purchases 1,004 acres in the Little Belt Mountains with hunter license dollars for the benefit of wintering elk. The Judith River WMA later grows to 9,406 acres.

1900 1910 1920 1930 1940

occupying much of the available prime habitat remaining in Montana. Biologists conducting studies on winter range saw that elk and increasing numbers of livestock were overgrazing state and national forest land. The department responded by putting the brakes on elk population growth in much of the animal's range. Because the primary tool for managing elk is public hunting, Montana began phasing out state preserves (though the efforts were met with resistance from hunters and other Montanans who wanted to see more elk). To increase the cow harvest, the department instituted either-sex hunting seasons. In 1963, hunters could take a bull or a cow in 67 percent of the state's occupied elk habitat during a five-week season, while antlered bull-only hunting was restricted to 21 percent of the elk habitat. These regulations initially resulted in high harvests of both cow and bull elk, which led to relatively low but stable elk populations.

By the late 1960s, wildlife biologists were asking questions about the effects of increased logging on elk numbers. Their main concern was the growing network of new logging roads opening up access to elk habitat previously secure from hunters. Montana's elk population was still growing, though more slowly than a few decades earlier, but wildlife managers were concerned that herds were increasingly vulnerable to overharvest if a severe early winter pushed them down from the mountains close to logging roads. What's more, either-sex regulations earlier in the decade had resulted in the overharvest of cow elk in some parts of the state. The department once again shifted gears, this time with the Fish and Game Commission restricting cow elk hunting opportunities. Short either-sex seasons lasting from one day to two weeks were applied to 66 percent of the occupied elk habitat, and season-long either-sex seasons were allowed in only 7 percent of the habitat. By reducing cow harvest, these and other regulation adjustments helped increase elk numbers.

Biologists were seeing that elk populations could be sustained at much higher numbers than previously thought. On the other hand, landowner tolerance in some areas meant that elk population objectives needed to be lower than what the land could support.

Over the next several decades, the department now known as Montana Fish, Wildlife & Parks continued to fine-tune its elk management. Hunters could still harvest cow elk, but only with permits restricted to specific hunting districts rather than across broad swaths of the state. Wildlife managers also began experimenting with bull-harvest restrictions, hoping to protect spike bulls for an extra year to provide more bulls with at least five-point antlers (two-year-olds) and potentially increase breeding success. After lengthy study of the experimental regulations, biologists later concluded that reproductive success was affected most by factors other than bull age. The research also showed that restricting harvest to bulls with brow tines only (age two and a half and older) did not produce a significant number of trophy bulls five years and older. The reason was that most bulls were harvested as soon as their racks sprouted legal brow tines, and very few escaped hunters long enough to reach trophy size. Nevertheless, because hunters prefer harvesting two- and three-year-old bulls to spikes, Montana continues to hold brow-tine-only seasons in many hunting districts.

In the 1980s, biologists began to set specific population objectives for the state's 35 elk hunting districts. Previously they had only used forage quality to classify elk populations, which they described as too high, too low, or "about right." If vegetation was poor due to drought or overgrazing, more elk in that area needed to be harvested. If forage appeared healthy, fewer elk needed to be harvested. But after 30 years of studying elk, biologists were seeing that in many areas elk populations could be sustained at much higher numbers than previous assumptions about forage indicated. On the other hand, landowner tolerance in some areas meant that elk population objectives needed to be lower than what the land could support. Added to the mix were new, more precise methods of counting elk numbers and determining sex ratios from the air while the animals were concentrated on their winter ranges. This gave biologists an increasingly accurate picture of just how many elk were out there and, thus, how many should be harvested each hunting season to grow or shrink specific populations.

Beginning in the late 1980s, Montana began adjusting hunting regulations to meet

1940: A Montana Supreme Court decision sets a precedent that property owners must accept some wildlife depredation to their land.

1947: The department purchases land along the Rocky Mountain Front. What later becomes the Sun River WMA grows to 19,771 acres of winter habitat for elk and other wildlife.

1955: Montana's statewide elk harvest reaches 16,000.

By 1969: Montana has designated ten wildlife management areas totaling 63,000 acres, primarily for elk and deer winter range.

1940 **1950** **1960** **1970**

1940: The department hires biologist Bob Cooney as Montana's first state big game manager. Cooney and other biologists establish a scientific foundation to elk management.

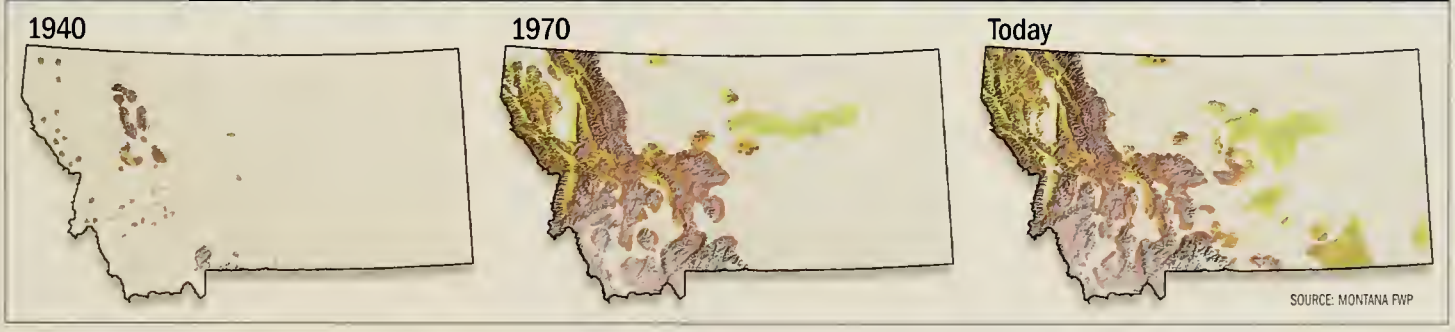
1951: Montana's elk population is estimated at 40,000.

In the early 1960s, wildlife biologists are concerned that elk are overgrazing winter range and recommend increasing the cow harvest.

1963: Elk populations are low but stable due to expansive either-sex hunting seasons.

KEVIN R. FREDENBERG

REGAINING TERRITORY Historically elk were a plains animal, ranging as far south as Texas. Market hunting and the conversion of grassland to farmland eliminated elk on the prairie and greatly reduced populations in the forested mountains. By the early 20th century, Montana was home to only a few thousand elk. Starting with transplants from Yellowstone National Park and then bolstered by scientifically regulated hunting seasons that restricted cow harvest, Montana's population quickly began to rebound. Herds first spread throughout mountainous forests (maps below, purple) then moved east into the Missouri Breaks and other historic prairie areas (below, green). Over the past decade, elk numbers in many areas have increased beyond what stockgrowers will tolerate.



SOURCE: MONTANA FWP

1978: Montana's elk population is estimated at 55,000.

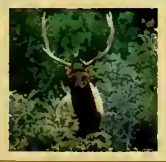
1979: The department is renamed Montana Fish, Wildlife & Parks.

In the early 1970s, concerns of overharvest lead the department to restrict most elk habitat to general antlered bull hunting.

1984: Four hunters from Troy establish the Rocky Mountain Elk Foundation.

1987: Hunting regulations begin to be adjusted to meet unique population objectives for Montana's 35 elk management units (EMUs).

1992: FWP releases a statewide elk management plan largely based on EMU population objectives.



2002: Montana's elk population is estimated at between 130,000 and 160,000.

2005: A revised elk management plan, based in part on input from landowners and hunters, addresses new challenges of decreasing access to private land.

2007: In December, Montana holds its first elk summit, where hunters, landowners, and agency officials discuss management issues.

1980 1990 2000 2010

population objectives for some of what the department was now calling elk management units, or EMUs. These objectives became the basis of Montana's first statewide elk management plan, completed in 1992. Regulations multiplied throughout the 1990s as FWP introduced more EMU-specific permits, licenses, and seasons, including late, early, and depredation hunts.

Finding a fair and reasonable balance

Even as the 1992 elk management plan was going into effect, biologists were again becoming concerned about growing elk numbers in some areas, having counted a total of up to 90,000 animals on their flights over the state's winter ranges. During the next decade and a half, the department began making more antlerless permits available, but hunters either would not or could not harvest enough cow elk to keep numbers down. For example, 5,200 antlerless permits were offered for the Gravelly–Snowcrest area of southwestern Montana in 1997, yet only 3,549 applicants put in for the permits as their first choice. One reason is an aging hunter population increasingly unwilling to pack several hundred pounds of meat out of the backcountry. Another is a series of mild winters over the past ten years that has reduced natural mortality and allowed elk to stay high in the mountains where many hunters are unwilling to venture. Another factor may be that growing numbers of elk hunters hold out for a bull and pass up cows early in the season. Whatever the reason, hunting has become less effective as an elk management tool. Currently, Montana's elk herd is up to an estimated 130,000 to 160,000 animals, and most of the state's 35 EMUs exceed the state's objectives for elk numbers.

The department's latest statewide elk management plan, issued in 2005, is aimed at helping FWP get a better handle on elk populations by addressing new social and biological realities. In developing the plan, the department considered comments and advice from hundreds of landowners, hunters, and other residents and nonresidents about elk management and population objectives for each EMU. The department has also formed community working groups in some areas to help interested parties reach consensus about elk number objectives and potential solutions to elk management problems. The plan calls for the state to use the Adaptive Harvest Management (AHM) concept, similar to the one adopted for mule deer management in 2001. With AHM, the Fish, Wildlife & Parks Commission can quickly respond to changing elk populations in specific areas with customized hunting regulations that decrease or increase elk numbers.

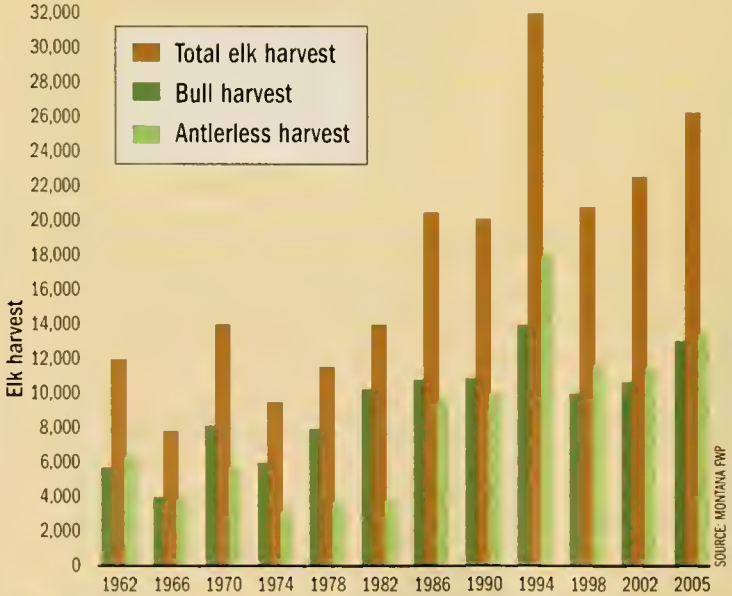
In 2006, FWP tried another approach to reduce elk numbers by eliminating many late- and early-season hunts in order to focus more hunting pressure during the main five-week season. Wildlife managers believed the battery of special seasons was allowing elk to move around and escape hunters.

Of course, not everyone agrees that Montana has "too many" elk. Hunters maintain that the problem is not an overabundance of the big game animals but rather a growing underabundance of private land open to public hunting.

That may be the biggest challenge for elk management in Montana today. Wildlife biologists estimate that 35 percent of the state's elk may be on private lands inaccessible to the general public. Many landowners are selling or leasing their property for private hunts. Others, often new landowners from out of state, forbid any hunting on

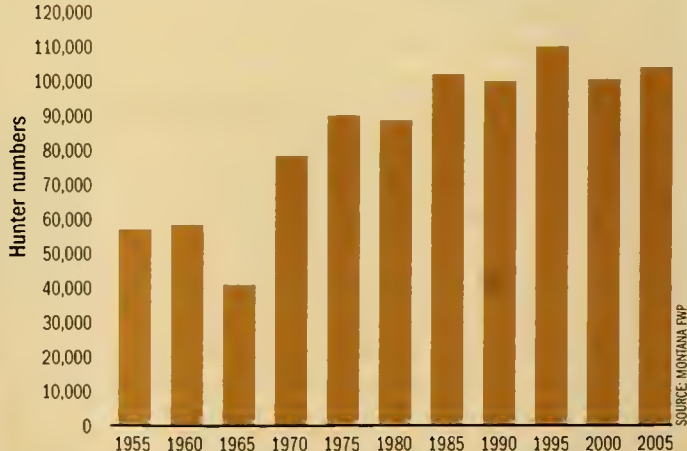
Elk harvest in Montana, 1962–2005

For decades, FWP has adjusted hunting regulations to increase or decrease cow elk harvest, which results in growing or declining elk herds.



Elk hunters in Montana, 1955–2005

Hunter numbers doubled between the 1950s and 1980s and have leveled off at roughly 105,000 since then. Roughly 85% of elk hunters are resident and 15% are nonresident. For the general elk license, nonresidents average twice the success rate (20.5%) as residents (10.7%), likely due in part to their much greater use of outfitters.



ISTOCKPHOTO

their property. Declining access to private land leaves hunters with fewer and fewer opportunities to harvest elk. This ties wildlife managers' hands as they try to respond to stockgrower requests for help reducing depredation problems. The closed properties become elk "preserves," where the animals remain secure from hunting during the season then afterwards head to neighboring ranches to feed. The closed gates also deny most hunters an opportunity to pursue what the courts have determined are elk that the state holds in trust for the general public. FWP officials fear this may lead to a decline in hunter participation and, as a result, less public support and funding for elk management and conservation.

A century ago, elk were following close on the heels of bison and nearly exterminated by unregulated commercial harvest. Bringing Montana's elk population back from the brink required the unprecedented cooperation of hunters, wildlife managers, and landowners. If Montana hopes to keep its beloved elk population healthy and strong for future generations to enjoy, it will likely need to find new and innovative ways to keep that decades-long partnership intact.

Later this fall, FWP will host a meeting of landowners, hunters, and others interested in elk and elk management. The State of the Elk: A Montana Summit will be held in Bozeman on December 8. The summit is open to the public. Check fwp.mt.gov for more information.

THE "KEEP OUT" ERA Elk management's biggest issue today is the decline in public hunting access. The closed gates create refuges that make it difficult for wildlife managers to use public hunting to manage growing elk numbers. This also frustrates adjacent landowners who suffer increasing levels of depredation, as well as hunters who have no means of reaching the elk, which the courts have ruled are held in trust by the state for the public.

Why We Hunt

Explaining the deep-seated need for game meat, outdoors companionship, and gittin' out amongst 'em.

BY JOHN MADSON

Fifteen years ago, when my friend John Mitchell was writing *Bitter Harvest*, he solicited my views on hunting.

We spent most of a day in a johnboat on a Mississippi River backwater while he asked penetrating questions and I provided fuzzy answers. He finally observed that my perceptions of hunting were metaphysical—and he was right, supporting Voltaire's contention that "When the speaker and he to whom he speaks do not understand, that is metaphysics."

I once spoke at a seminar of biologists and offered some general, rather superficial reasons for why men hunt deer.

They do so for many reasons, any one of which may be enough. A common one, of course, is the meat reason. The woods are full of people who claim to be hunting for prime meat, although I've a hunch that this is a standard alibi for busting the first deer that comes along. Yet, there are some real meat hunters—men who are pretty good at judging wild meat on the hoof, and who have the patience and experience to carefully pick and choose, and who take pride in the quality of their venison. There are still a few old hands who will pass up a trophy buck for a plump little forkhorn—although they are often experienced hunters who have already taken their share of trophy bucks.

Then, of course, there's the trophy reason. In its shallowest context, it is simply an exhibitionist effort to display prowess and status. In a deeper context, it goes beyond that.

Aldo Leopold once observed that "Poets sing and hunters scale the mountains primarily for one and the same reason—the thrill to beauty. Critics write and hunters outwit their game for one and the same reason—to reduce that beauty to possession."

Those trophy antlers on the wall may not be only a hunter's effort to possess beauty, but also to keep something important to him from slipping away and being forgotten. And if the trophy testifies that here is a strong and skillful hunter—well, what's the use of denying it?

And so the great stag has been stalked and taken.

Ten thousand years ago the hunter might have stood by a fire and recounted the great deed to his clan brothers, while the old men nodded their approval and stripling boys back in the shadows listened in wonder. It hasn't changed much. The trophy hunter, the ethical killer of the great stag, or bear, or ram, still commands attention by the fire as he recites his deeds. His peers still salute him, the old men still nod and remember, and boys still dream of tomorrow's hunts.

Most of us will never kill the great stag. Yet we have all taken deer that held special trophy value for us, and such value is not always a measure of tine and beam. It may be just a measure of hard, solid hunting in which both man and deer conducted themselves well, so that neither was shamed.

Trophy hunting has been bitterly condemned for an alleged deterioration of a game stock by killing off the best males. Yet neither the mathematics of genetics nor the observed facts of breeding within wildlife populations add support to that contention. A five-by-five mule deer buck is nearing the end of his days and has already done his share of genetical work. Still, that is empty sophistry if the taking of that trophy is unethical—in which case it is not a trophy at all.

Companionship can be a strong element in hunting. For as long as men have hunted, they have banded into special hunting packs with their own taboos, traditions, and rituals. And sometimes the companionship and the rituals become more important than the hunt itself, and sometimes the greatest pleasure is in anticipation and recollection, with the hunt only serving to bond the two.

CHUCK & GAIL ROBBINS

A considerable part of modern sport hunting (as with much of our daily living) is the exercise of technology. That is, the employment of gadgetry for its own sake. I plead guilty to that in part, for a fine rifle or shotgun plays a significant part in my enjoyment of hunting. I admire the skill and artistry that go into the making of such guns—but I am uninterested in any gun, however beautifully wrought, if I cannot shoot it well. I count myself as a good shot. When the day comes that my eyes and reflexes impair that ability, I will not hunt again.

Our critics are fond of pointing out that wildlife has scarcely a chance against our highly efficient technology. But the fact is, wildlife has an edge of its own—and it is likely to be enhanced by our increasing dependence on gadgets and less reliance on our legs, eyes, ears, patience, and the savvy that accrues from years of experience. A good working definition of a game species is one that is fitted with survival equipment enabling it to take advantage, while a genuine sport hunter is one constrained by ethics and respect to give advantage.

But as much as anything else, one of the greatest urges impelling such a hunter is his search for freedom, and for the genuine personal adventure inherent in such freedom. Just as game species may be the truest indicators of quality natural environments, so hunting can be an indicator of quality natural freedom.

Dr. Murdock Head told of a noted physician who was visiting an Adirondack deer camp for the first time. He was not a hunter; it was all new to him. As he stood by the cabin door one evening, watching hunters dress deer while their companions offered unsolicited advice, listening to the good laughter and easy talk, the doctor turned to his host with a look of sudden comprehension and said, "Why, these men are free!"

Pascal once observed that the virtue of hunting is not in possessing game, but in the pursuit of it. By being absorbed in looking outward for game, "the hunter is absolved of the really insupportable task of looking inward upon himself." And so the hunter's eyes are directed outward instead of inward, and myriad nagging, worrisome concerns are overlain with the illusion of being part of an older, freer world.

I once asked an old river rat of long acquaintance why he was such a deeply committed hunter.

He thought for a moment and replied: "Why—to git away from the house and git out amongst 'em mainly."

Homer once said much the same thing: *Manet sub love frigido Venator/Tenerae coniugis immemor.* Which renders out as "The hunter goes his way 'neath frigid skies unmindful of his tender spouse."

> Your presence has been absorbed into the pattern of things, you have begun to be part of it, and this is when the hunting really begins.

...The genuine hunter is probably as free as it's possible to be in this technocracy of ours. Free not because he sheds civilized codes and restraints when he goes into the woods, but because he can project himself out of and beyond himself, out of and beyond the ordinary, to be wholly absorbed in a quieter, deeper, and older world.

You know how it is. When you go into the woods your presence makes a splash, and the ripples of your arrival spread like circles in water. Long after you have stopped moving, your presence widens in rings through the woods. But after a while this fades, and the pool of silence is tranquil again, and you are either forgotten or accepted—you are never sure which. Your presence has been absorbed into the pattern of things, you have begun to be part of it, and this is when the hunting really begins.

You can always feel it when those circles stop widening; you can feel it on the back of your neck and in your gut, and in the awareness of other presences. This is the

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The late author and conservationist John Madson delivered this essay at the groundbreaking first Governor's Symposium on North America's Hunting Heritage in 1993 in Bozeman. He was the author of a dozen books, including Where the Sky Began *and* Up on the River.

real start of the hunt, and you'll always know when it happens and when you are beginning to hunt well.

There were those times when I was a kid, hunting and trapping and sometimes spending several days and nights alone in the woods, when I'd have a flash of insight that was often gone as swiftly as it came—a vague sense of what aboriginal hunters must feel, and what real hunting, the pure-quill honest-to-God real hunting, is all about. One strong flash of this to a boy—one swift heady taste of an utter wild freedom and perception—is enough to keep him hunting all his days. Not just for meat, or horns, but for that flash of insight again, trying to close the magic circle of man, wildness, and animal.

Is blood lust a prime motivation of hunting, as some of our critics contend?

The late Dr. C. H. D. Clarke pointed out that perverted and inadequate people may indeed hunt, but contended that this is not the story of hunting.

The human investment of hunting with magic, he felt, was a logical development of being able to think about nature, and wonder where the next feast was coming from. When the magic is truly imbedded, it is part of our inheritance. Hunting still has (for some of us) its prehuman excitement and prestige, and its human magic, and when we hunt there is a deep satisfaction that comes from a contact with nature that is healthy and traditional. Blood lust it is not. The deepest fear of the primitive hunter is of offending the spirit of the game. Clarke once saw an old Eskimo who, when young, had been deliberately blinded by his fellow hunters. They were afraid because the man had been disrespectful to a caribou he had killed. For such a sin there had to be a terrible expiation. We do not do that anymore, nor do Eskimos, but the unethical hunter is at least uneasy—and if he is an Eskimo he may be afraid.

Sport hunting, Clarke went on, can surely put us inside the world of nature. The real hunter does not go into that world of nature as a casual onlooker, but as an active participant.

Speaking personally, there are many uses of outdoor October, and I savor them all. I could drink that ale-golden month to its dregs and never touch a gun. But without hunting, some of the savor would be missing. Lovely and rich as autumn would still be, a certain condiment would be gone, and I think I know what that is. It is seeing grouse and pheasants and quail and mallards at close-hand as any predator might, and seeing how fine-tuned, ingenious, and intricate their responses to predation can be. I might watch game birds and animals at all seasons under a full range of conditions, and yet never know them as I do when I am hunting them well and they are doing their usual fine job of parrying my thrusts.

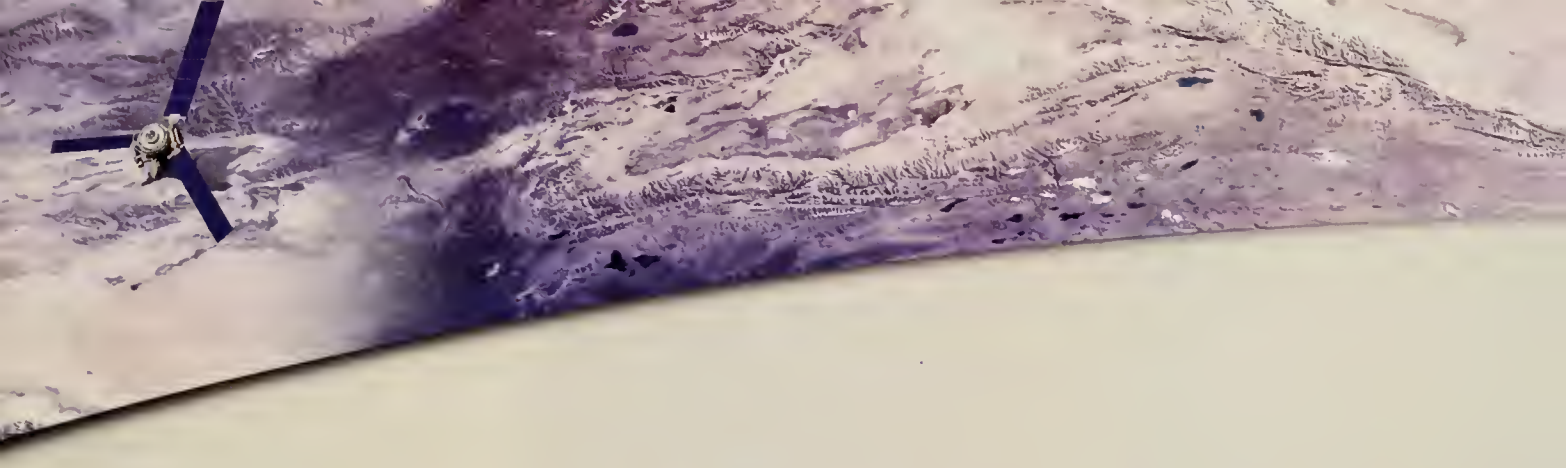
Hunters may try to reduce their motives to such tangibles as trophies, meat, good dogwork, companionship, exercise, freedom in quality environments, or simply "adventure." Underlying all that, however, are deeply embedded reasons that neither hunter nor psychologist is really equipped to fathom.

Our severest critics are much surer of themselves. The kindest thing they say about us is that we are cruel and dangerous children; at our worst, we are barbarians that revel in the joy of inflicting pain and death. And there is some truth in all of that. We cannot deny that such hunters do exist; to do so is to delude ourselves. On the other hand, the shrill antihunting critics seem unable to understand the motives that impel what I choose to call the "genuine hunter." That is, the person with a deep personal bond to the game he hunts and the habitats in which he hunts it. Such emotion can result only from the respect that grows from experience and reflection.

Our critics deplore hunting on an emotional basis, just as we hunters defend it. Each extreme would do well to share a more objective position. Both hunter and antihunter should be governed by sound biological principle. Hunting cannot be condoned if it is not based on biological management and does not demonstrate respect for game and the habitats in which it is hunted. On the other hand, hunting is best defended by adherence to sound biological principles and demonstration of a genuine respect for nature.

Why do men hunt? It goes far beyond anything I've said here. How can one explain the inexplicable? But after more than fifty years of hunting, I'm pretty sure of two things: that hunting is too deeply rooted in the metaphysical to allow clinical examination—and that it's a happy man who keeps his youthful appetite for that sort of metaphysics.

JUDY WANTULOK



Follow That Bear

How biologists track grizzlies, wolverines, and other elusive wildlife through the most remote reaches of Montana. By Becky Lomax

"It's a wonder we get any of these collars out," says Rick Mace as he describes the difficulty of capturing female grizzly bears and fitting them with collars containing GPS (Global Positioning System) transmitters. For the past three years, the Montana Fish, Wildlife & Parks bear biologist has been studying grizzly population trends in Montana's Northern Continental Divide Ecosystem (NCDE), which encompasses Glacier National Park and the Bob Marshall Wilderness south to the Blackfoot Valley. The study requires that Mace and his crew regularly trap bears, which have to be grizzlies, not black bears. The captured bears must also be female, not male. And each animal's neck must be large enough so the collar doesn't slip off. "Trapping the right bear is like trying to find a needle in a haystack," says Mace. Unfortunately, there is no other way to learn if NCDE grizzly numbers are rising, falling, or holding steady—vital information for determining the health of the grizzly population.

In 2004 bear specialists and biologists with FWP and other state and federal agencies, Indian tribes, and the University of Montana captured, tranquilized, and fitted GPS collars on 25 female grizzlies. Over the past three years the scientists have monitored the bears from aircraft to learn reproduction and survival rates. The results, based on a baseline population estimate, will help determine whether the NCDE grizzly population has recovered and should be moved toward federal threatened species delisting.

Key to this and dozens of other wildlife monitoring projects across Montana is the amazing technology of GPS. Originally invented for military purposes, a GPS unit can pinpoint the exact location of animals previously untrackable. The technology "has revolutionized our understanding of wildlife habitat and how animals use the landscape," says John Squires, a U.S. Forest Service (USFS) biologist tracking the movements of lynx in northwestern Montana.

They can run but not hide

Scientists use GPS to track everything from bears to burbots. Kim Keating of the U.S. Geological Service Northern Rocky Mountain Science Center in Bozeman has followed bighorn sheep in Glacier National Park and neighboring Waterton Lakes National Park in Alberta. He is learning how often the sheep visit mineral licks and cross the international boundary. Within both Glacier and Yellowstone national parks, biologists from the USFS Rocky Mountain Research Station in Missoula are using GPS to locate wolverine home ranges and learn how the animals use their habitat. In the Madison Valley, wildlife scientists from Montana State University and FWP are tracking GPS-collared elk to understand the ungulates' movements away from hunters and predators. The scientists are also following GPS signals sent from the collar of a single wolf to monitor the behavior of its pack. In addition, Montana-based scientists follow the movements of bison in Yellowstone National Park, waterfowl across North America, and fish in the Missouri, Blackfoot, Yellowstone, and Sun rivers.

Until recently, biologists relied on radio telemetry to track wildlife. The radio transmitter, attached to a collar, emits a signal frequency that a receiver picks up if the animal is within 1 mile. Like the child's game of Hot and Cold, the receiver beeps louder and more frequently the closer it gets to the transmitter. Biologists hold the receiver and

ROBERT J. WESELMANN

TIME FOR YOUR FITTING A biologist darts a fleeing wolf with a tranquilizer dart so it can be fitted with a GPS collar. One of the hardest parts of GPS monitoring is capturing the animal. In addition to tranquilizers, wildlife are captured by dropping nets from helicopters. Species that stay in wooded areas, such as bears and wolverines, are captured with snares or other live traps. Biologists take advantage of the opportunity to weigh and measure the sedated animals, as well as gather hair, blood, and saliva samples.

BRENT & DELLA LONNER

slowly rotate 360 degrees, listening to the beep frequency in order to get a fix on where the animal might be. These devices are still used, primarily because they are so inexpensive (roughly $300 each), but they require a great deal of walking and only work if the animal is nearby and in open terrain where trees and mountains don't block radio waves.

GPS works much better. Similar to the handheld models available in sporting goods stores, the GPS units used to monitor wildlife gather a location fix by trilateration, deriving coordinates from the intersection of any 4 of 27 satellites orbiting Earth. The GPS receiver determines where those four satellites are in space and how far away each one is from the receiver. The intersection of those distances pinpoints the exact location of the receiver, which is attached to a collar on the animal's neck.

Most of the weight on the collar is the battery, which regulates the life of the GPS. Every time the unit turns on, it eats up juice. Researchers in Glacier National Park last winter programmed the GPS units they put on trapped wolverines to take a reading every five minutes, which drained the batteries in just eight days. Some batteries last a year by gathering data less frequently. The Madison Valley wolf collar picks up data every three hours, while collars on Glacier National Park bighorns record locations in five-hour intervals. Madison Valley elk carry collars set to take readings every 30 minutes, and due to the animals' larger size, the GPS units can carry a large battery that lasts a year. Mace extends battery life by setting his GPS units to shut down from November through mid-April, when the grizzlies are hibernating. Squires conserves battery power by programming the units on lynx to turn on only in winter and summer, when he is most interested in gathering information.

Encased in a plastic shell and mounted on a collar, the GPS and battery hang on the animal's neck below the chin. To pick up information from satellites, a small flat antenna pack sits on top of the collar in direct line with the sky. Interference from heavy timber, cliffs, or even the animal's body when it sleeps prevents the GPS from consistently recording

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Becky Lomax is a writer in Whitefish.

fixed locations. Due to the dense forest where the animals frequent, collars on the Glacier wolverines pick up the animals' locations only 50 percent of the time, compared to a 98 percent recording rate for elk in the open Madison Valley.

The GPS collar stores data until biologists collect the device and download the locations, called waypoints. Small locking devices programmed to unlock at a specific time release the collar from the animal's neck. Biologists then use radio telemetry receivers to find the GPS collar, which contains a radio transmitter, and retrieve the data. More expensive GPS receivers, like the $5,000 models Mace uses on grizzlies, relay the waypoints to satellites and then to ground stations. The biologist accesses the data by computer to track and map a bear's current whereabouts and route since the previous reading.

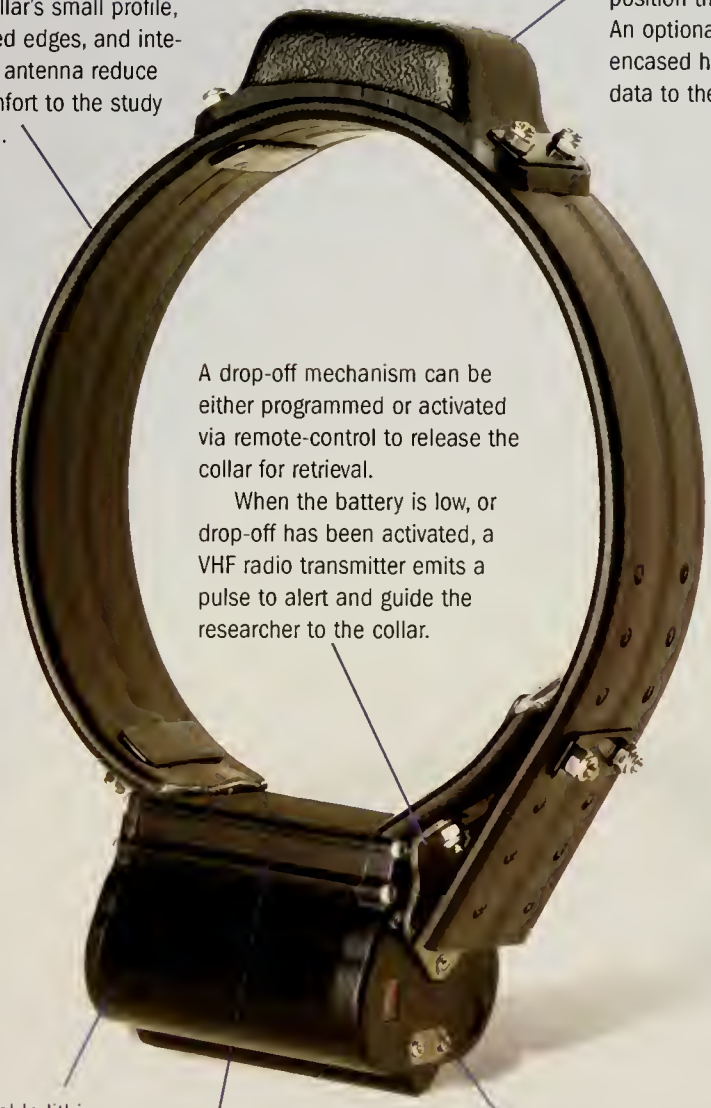
Getting a good fit

Biologists say trapping and collaring is one of the most difficult aspects of GPS tracking. No wild animal willingly submits to having someone cinch a plastic belt around its neck. Biologists use traps and then tranquilizers, or they drop nets on fleeing animals from helicopters, immobilizing the critters. Mace lures grizzlies into culvert traps or snares with deer road kill. While the bear is drugged, he fits a GPS collar snugly around its neck. As do researchers working on other species, he also takes advantage of the opportunity to gather hair, blood, and saliva samples, take measurements, and estimate age.

The collars must fit exactly. Too tight and the animal suffers; too loose and it will shed the hardware. Biologists help manufacturers devise collars that work for different species. Badgers, wolverines, and other mustelids, which have heads narrower than their necks, are especially difficult to fit. "One of the hardest parts about tracking wolverines is just getting the collars to stay on," says Rick Yates, lead field technician for the USFS studies. Mace's collars have to fit just right so the antenna stays on top. "You can't just slap any old collar on any bear," he says. The 25-inch collars are designed for female grizzlies at least three years old and 150 pounds or more. If a bear is too small, the antenna hangs askew and picks up fewer satellite connections.

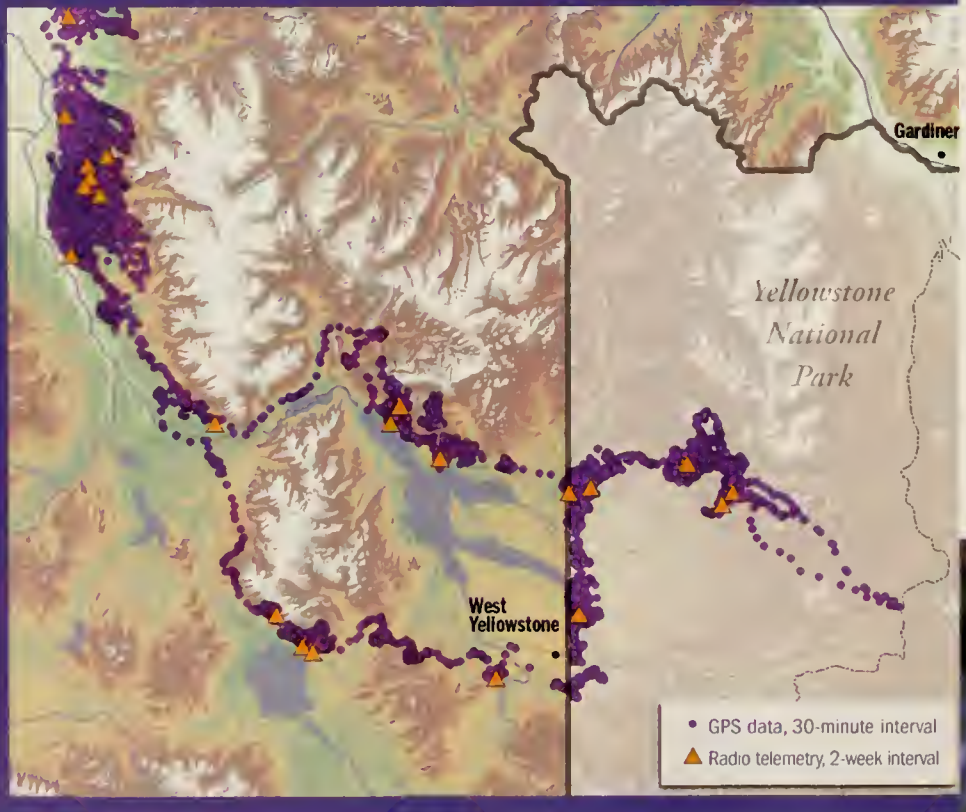
Hi-Tech Wildlife Necklace

State-of-the-art GPS tracking collars provide wildlife researchers with accurate locations and other previously unobtainable information about study animals, even in remote locations. The collars, which can cost up to $5,000 each, make use of the same GPS technology found in units used by hunters, hikers, and drivers.


The integrated GPS antenna keeps track of the animal's position through trilateration. An optional satellite antenna encased here can upload the data to the researcher.
The collar's small profile, rounded edges, and integrated antenna reduce discomfort to the study animal.
A drop-off mechanism can be either programmed or activated via remote-control to release the collar for retrieval.
When the battery is low, or drop-off has been activated, a VHF radio transmitter emits a pulse to alert and guide the researcher to the collar.
A detachable lithium battery keeps the collar functional in temperatures as low as -30°F.
Sensors record temperature, activity, and mortality data. This information and position data are stored on an internal memory chip.
The data can be transmitted via radio frequency, text messaging (to a cell phone or e-mail message), or by satellite. Data can also be downloaded directly to a computer via a built-in USB port.

TELLUS GPS COLLAR PHOTO COURTESY OF TELEVILT

Advantages of GPS tracking



MORE AND BETTER DATA For years, biologists relied on radio telemetry to track wildlife. The technology required getting to within 1 mile of the collared animal, either by hiking or using aircraft (top). By comparison, GPS tracking collars can be monitored from an office computer. The greatest value of GPS is the number of waypoints it records. The map above shows the difference between the few dozen waypoints logged by radio receivers on elk leaving Yellowstone National Park and the thousands of waypoints that GPS collars recorded.

ELK DATA FROM JIMMY GRIGGS AND DR. BOB GARROTT, MSU; MAP DATA GRAPHICS PROVIDED BY JULIE CUNNINGHAM AND KEN HAMLIN/MONTANA FWP

Animals can lose collars before the lock is supposed to detach. Grizzlies often try to wriggle free, and cubs sometimes chew them off their mother. Mace says he loses two or three per year. He can quickly tell when one has been dropped because the coordinates don't move. He then heads to the site and hones in on the collar using a handheld telemetry antenna that picks up the transmitter signals. One lost collar was detected almost immediately, near Glacier's Granite Park Chalet. The device was at the bottom of an old pit toilet where the bear had been poking its nose. Mace had it back in hand the next day, ready for another bear.

Where do they go?

Using GPS is the closest biologists can get to learning where an animal travels throughout a day, week, or year. After downloading waypoints from a retrieved collar, they enter the data into a computer software program that plots the animal's locations on a map. Each Madison Valley elk collar, for example, provided 16,000 locations over an 11-month period. Scientists see the rivers and mountain passes each animal crosses, which forest paths it takes, and where it spends summer and winter. The GPS data also shows when animals migrate, where they den or give birth, and where they feed. FWP and other agencies use the information to regulate both recreation and commercial uses to protect critical wildlife habitat. For example, if biologists see that a key deer wintering area is near a snowmobile trail, they may recommend rerouting the trail. Civil engineers use

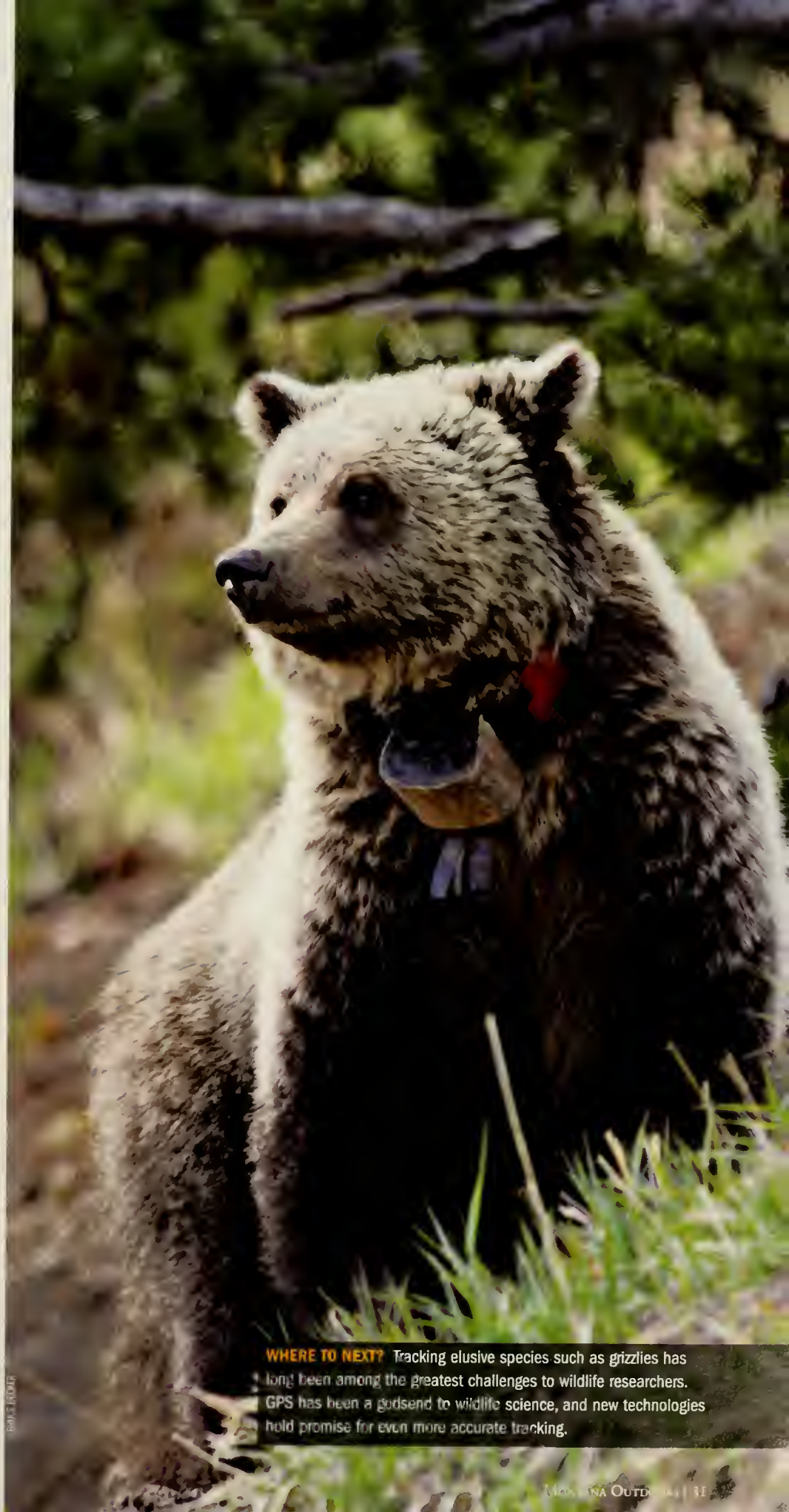
the data to protect wildlife migration corridors when routing roads and planning highway construction.

GPS units also reveal little-known behavior. Dr. Bob Garrott of Montana State University and FWP ungulate research scientist Ken Hamlin found that once elk leave the boundaries of Yellowstone National Park, they head to the safe confines of private land, which has less hunting pressure than national forests surrounding the park. Keating, the bighorn researcher in Glacier National Park, has confirmed that wild sheep shun dense woods. One bighorn, for example, followed an arduous mountain peak route rather than take a shortcut through heavy forest, where it would have been more vulnerable to mountain lions or other predators. Mace found that one grizzly did not emerge from hibernation until mid-May—two months after most bears wake up. And Squires confirmed the highly territorial nature of lynx. "They have inflexible boundary routes that are nearly set in stone," he says.

As GPS technology continues to improve and the hardware and batteries shrink, biologists soon will be able to track smaller animals. Some birds such as falcons and eagles have recently been outfitted with miniature backpacks carrying GPS transmitters. In fall 2006, Rob Domenech of Missoula's Raptor View Research Institute fit a GPS pack on an adult golden eagle to learn where it spent the winter.

GPS units and batteries are still too large and heavy to use for songbirds. But if the constant shrinking of personal computers is any indication, it won't be long before biologists will be able to track nearly any critter that flies, swims, runs, or crawls. That is, if they can figure out how to keep the darn collars from coming off.

For more information on Rick Mace's grizzly bear monitoring program, visit: http://fwp.mt.gov/wildthings/tande/monitoring.html. Additional information on bighorn sheep research in Glacier National Park is at http://www.nrmsc.usgs.gov/research/ungulate_research.htm. The study on wolf-elk interaction in the Greater Yellowstone Ecosystem is at http://www.homepage.montana.edu/~rgarrott/wolfungulate/project_description.htm.



WHERE TO NEXT? Tracking elusive species such as grizzlies has long been among the greatest challenges to wildlife researchers. GPS has been a godsend to wildlife science, and new technologies hold promise for even more accurate tracking.

The quiet waterfowler

A SHIRT, A NEWSPAPER, A LIMIT OF MALLARDS

By Tom France. Illustrations by Mike Moran

It was one of those Saturdays that happens every year right in the middle of duck season.

You go hunting not with high expectations of a big shoot or even seeing many ducks, but just to go. And, as expected, my friend Dennis and I set the decoys out that morning and saw only a few distant ducks before deciding to pick up and scout around for a better spot. After an hour of bumping down gravel roads looking at empty marshes, we were ready to head home.

Then we turned down a road to make one last check of a rancher's creek, and there they were—ducks and more ducks, hundreds and hundreds of ducks, loafing across a big flooded field bordering the stream. If we had been in a duck hunting cartoon, our eyes would have been bulging out of our head, smoke coming out our ears. To our astonishment, the rancher said "You bet" when we asked if we could hunt.

We turned our attention to how we might hunt this hoard of ducks and quickly realized our options were limited. The massive grass field was covered by an inch of water, with no place to hide or even sit down. The only cover anywhere close was along the creek, where a few willow bushes provided a little cover. This being the only option available, we scared the ducks off the field and set out a dozen decoys along the creek, hoping the birds would come our way when they came back.

As we huddled under the bushes, the ducks began to return—but only to the flooded field. Dozens of ducks came back before the sun set, but they ignored our little decoy spread and insisted on landing in the flat water 100 yards away. "Damn," I muttered. "Damn," muttered Dennis.

We returned the next morning determined to have our way with those mallards. Driving up from Missoula in the dark, we pondered our strategy. Maybe a bigger decoy spread would work. What about big goose shells along the banks of the creek? We definitely needed to use our ducks calls! But none of these options seemed all that promising. Those mallards liked that flooded field and weren't about to land anywhere else.

My friend Dennis is a man of ideas, which he often unveils slowly, putting them out one piece at a time as a conversation unfolds. As we drove, he casually observed that when he was in college he used to scare the wits out of his friends by sneaking a mannequin into the backseat of their cars. "They'd come out of the library at night, jump in their cars, and drive off," Dennis said. "Pretty soon they'd sense they weren't alone, and they were right!"

After a few moments, Dennis asked, "You don't have a mannequin, do you?"

I could see where he was going with all this. We needed a scarecrow for those ducks, something to keep them out of the flooded field and focused on the creek. As the miles passed, we brooded in silence until I suddenly realized we had most of what we needed readily at hand.

"I've got a red jacket in the backseat," I said. Dennis volunteered his waders. We had

The sight of someone sitting in their field reading the Sunday paper confounded them, so they circled, looking at our silent reader first from one angle and then another. They talked things over with their mates.

some old newspaper for stuffing materials. Then, driving through the little town of Ronan, I spotted the final ingredient. There, in front of the secondhand store, in amongst other items left out for the night, was a row of chairs. We figured the owner wouldn't mind us borrowing a bright yellow kitchen chair for a few hours of honest duck shooting, but just in case I slipped a note and a few dollars under the front door.

We arrived at the field at first light. Only a few mallards jumped up as we drove in, but we knew the rest were out feeding. Dennis worked on setting up our new hunting partner while I tended to decoys. As we settled into our blind, I finally looked over to the flooded field and my eyes grew wide. There, sitting in his bright yellow chair like he'd been there all his life, was a man at his leisure reading his Sunday paper. "Dennis," I said, "With our man on the job, I think this might just work."

At first our new hunting partner didn't have much to work with, just a couple of mallard pairs out for their morning constitutional. But those ducks reacted exactly as we had hoped. The sight of someone sitting in their field reading the Sunday paper confounded them. So they circled, looking at our silent reader first from one angle and then another. They talked things over with their mates. Then they flew around again. Finally one pair decided to come by the creek and our hiding spot, all the while looking nervously over their shoulders. Our retriever was very happy.

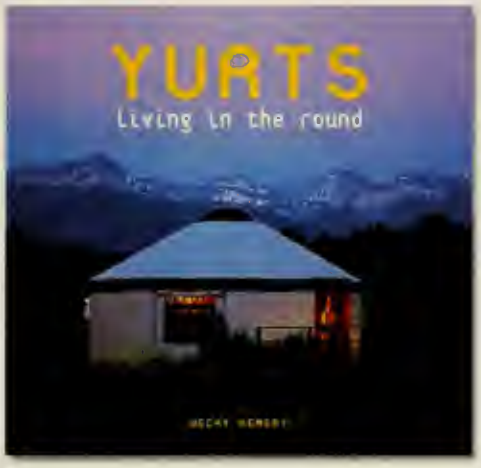
At about 9 a.m., the course of the day changed dramatically. The first flock of 30 mallards came back from a feeding field somewhere to the southeast. They had their wings set and were confidently settling into the flooded field when they noticed you-know-who. A little breeze caused him to readjust his paper; I think he was reading the sports page. Up went the ducks and over the creek they came. Again, our retriever was pleased.

For the next hour, flock after flock returned from the fields. We would peer out of our blind and remark, "Here comes another wall of ducks." It was like being at a big airport and seeing one plane on its final approach, with another plane stacked behind it, and another, and another. Only in our case, they were flocks of ducks.

But it was our hired hand who turned a duck watching morning into a duck shooting morning. With nary a lifted finger, he turned aside every one of those legions of mallards. Oh, a couple might have actually landed in the field, but his mere presence made them so nervous that they quickly departed, usually for a little tour of the creek.

Thanks to our new pal, we made short work of those ducks, easily shooting a couple of limits by 10 a.m. Without him we would have been sunk, sullenly watching as hundreds of ducks landed just out of our reach. With him, we were manly men, with heavy game bags and empty shell pockets. As we picked up, returned the chair, and drove home, we had but one question: How long would it be before we saw him prominently displayed for sale in the Cabela's catalogue?

Writer Tom France, Missoula, directs the National Wildlife Federation's conservation programs in the Northern Rockies. New Jersey illustrator Mike Moran's artwork has appeared in the New York Times *and* Harvard Business Review.



Yurts: Living in the Round. *Becky Kemery. Gibbs Smith Publishing. 150 pp. $24.95*

People generally don't associate Montana with yurts, but these remarkably lightweight shelters invented on the Mongolian steppes are becoming increasingly popular in Big Sky Country. To understand why, look no further than this beautifully illustrated new book written by Becky Kemery. A yurt is a round, portable, tentlike structure with circular lattice walls and a cone-shaped roof covered with an outer material of felted wool, coated canvas, or modern fabrics. Yurts are to the nomads of Central Asia what tipis were to North American Plains Indians: lightweight, portable living spaces that provide protection from wind, rain, cold, snow, and sun. Most chapters of *Yurts: Living in the Round* are devoted to portable and permanent yurts in the United States. The fashionable structures are being embraced as harmonious spaces that create, in the words of Yurt Foundation director William Coperthwaite, "better ways to live."

You can't finish this book without wanting to experience yurt living firsthand, and fortunately there are several opportunities in Montana. The city of Troy rents one in Roosevelt Park on the Kootenai River. Backcountry adventure companies offer yurt lodging for skiing and hiking. And a yurt that sleeps up to six is available year-round at the Big Arm Unit of Flathead Lake State Park (call 406-752-5501 for information and to make reservations).

Fish: 77 Great Fish of North America. *Flick Ford and Dean Travis Clarke. Greenwich Workshop Press. 260 pp. $50*

This gorgeous coffee-table volume features some of the most remarkable fish illustrations ever published. Though most are saltwater species, the 22 warmwater illustrations alone are worth the price tag. New York artist Flick Ford's drawings are biologically precise down to the number of scales along the lateral line. They also convey the essence of each fish, from the predatory refinement of the rainbow trout to the broad-shouldered pugnacity of the largemouth bass. In the introduction, Peter Kaminsky, outdoors contributor for the *New York Times*, writes of the prints: "Each is an evolutionary marvel expressed through the artistry of a man who may one day lay claim to the title of fishdom's Audubon."

Big Sky Cooking. *Meredith Brokaw and Ellen Wright. Artisan. 225 pp. $35*

This is an odd cookbook, really more a hodgepodge of family diary, newcomers' tribute to country life, and essays by famous friends of Tom and Meredith Brokaw. He is the retired NBC *Nightly News* anchor, and she is the book's co-author, along with friend Ellen Wright. *Big Sky Cooking* is as much about the Brokaws' love affair with Montana and their ranch on the West Fork Boulder River as it is about food. But the recipes, arranged as a series of "menus for a Montana Day," are worth exploring. I made the Bison Osso Buco, substituting venison shanks for buffalo with great results. The Country Style Potato and Onion Pie—easy, hearty, and delicious—has become a staple at our house. And Ms. Brokaw's grandmother's Chocolate Buttermilk Cupcakes are about as good as this portable dessert can get. Resident Montanans may want to skip the prose and dive right into the recipes, but nonresidents will likely enjoy both.

Last Tango in Melrose, Montana: The Writings of Dan Vichorek. *University of Montana Press. 110 pp. $12.95*

The Best of All Seasons: Fifty Years as a Montana Hunter. *Dan Aadland. University of Nebraska Press. 260 pp. $24.95*

This first collection of Montana essays is by the late Dan Vichorek, a journalist for the *Billings Gazette*, magazine humor columnist, and author of several books on Montana life who died in 2001. Vichorek writes in a no-nonsense style and tells a story as well as anyone. The best in the collection is the title piece, which first appeared in *Montana Magazine* in 1981.

The second collection is by horse breeder and retired high school English teacher Dan Aadland of Absarokee. Author of several books on ranching and other aspects of Montana life, Aadland sums up his latest volume "as a tribute to hunting." Most of the essays are about Aadland's lifelong love affairs with rifles, hunting, and horses.

2007 *MONTANA OUTDOORS* INDEX

All stories from 2007 issues of *Montana Outdoors* are available on-line at fwp.mt.gov/mtoutdoors.

January–February 2007

Our 26th annual all-photography issue. Montanans may not always reach consensus on issues surrounding elk, wolves, trout, walleyes, water, and grasslands. But they do agree that this is a beautiful state bestowed with magnificent scenery, diverse wildlife, abundant outdoor recreation, and a rugged character long absent from most other states.

March–April 2007

Where's the Wildlife? In Montana, it's everywhere. You just have to learn how to see it. *By Becky Lomax*

In Fine Working Order. It takes expertise, money, innovation, and a stubborn sense of thrift to keep Montana's 50 state parks and 320 fishing access sites clean, safe, and functional. *By Will Harmon*

Learning to Live with Whirling Disease. This trout killer may not be as deadly as once feared, but it's still a threat to Montana's cold-water fisheries. *By Brian Maffly and Tom Dickson*

Ferrets in the Spotlight. Searching eastern Montana for North America's rarest mammal. *By Sam Curtis*

Generation Axe. With Pulaskis in hand, teens and young adults with the Montana Conservation Corps work together to blaze trails, cut brush, and otherwise improve Montana's outdoors. *By Perry Backus*

Incredible Journeys. The life and travels of fur trader David Thompson, the first white to explore and map today's northwestern Montana and western Canada, were nothing short of remarkable. *By Dave Walter.*

May–June 2007

Come on in, the Water's Fine. FWP's popular Fishing Access Site Program lays out a welcome mat to the state's scenic public lakes and rivers. *By Dave Carty*

Follow That Fish! FWP's three Adopt-a-Fish programs use the Internet to put students into the underwater world of trout, sturgeon, blue suckers, and other fish species. *By Dave Hagengruber*

$50 an Ounce. Can Montana's paddlefish survive the growing international demand for their eggs? *Story and photos by Andrew McKean*

Safely Down the Stream. A beginner's guide to rowing Montana's scenic rivers. *By Neale Streeks*

Ye Gods! This Is Restoring Trout Habitat. In Paradise Valley, spawning tributary improvements are helping conserve Rudyard Kipling's "small tigers." *By Glenn Phillips*

July–August 2007

Battle on the Bighorn. Holding back water for lake recreation could doom the world-class trout fishery downstream. *By Brian Maffly*

A Song for the Unsung Prairie. Photos and essay. *By Ben Long*

The High Price of Gas. Will fish, wildlife, and scenery bear the cost of Montana's growing natural gas development? *By Tom Dickson*

A Park Next Door. Urban state parks provide outdoor recreation and scenic beauty for city dwellers throughout Montana. *By Sam Curtis*

Too Close for Comfort? As more people build homes along Montana's cherished rivers, citizens and communities debate how near the water those structures should be. *By Mary Vandenbosch and Jeff Erickson*

September–October 2007

Cream of the Crop. Wildlife management areas encompass some of Montana's finest habitat communities. *By Sam Curtis*

The Golden Legacy of "Hunter Ed." Sputnik went up, McCartney met Lennon, and Montana began an education program that over the past 50 years has helped 300,000 hunters become safer and more responsible in the field. *By Andrew McKean*

Moving Meat. How to pack an elk, deer, or other big game animal out of the backcountry—without killing yourself in the process. *By Tim Christie*

The Old Man and the Boy. Along with his first gun came an education in using it responsibly. *By Robert C. Ruark. Illustrations by Nora Wildgen*

Too Many Places to Hunt. Advice on figuring out where to hunt on Montana's overwhelming 30 million acres of public hunting land. *By Dave Carty*

Secret Spots. "Swear to me you won't tell anyone about this place..." *By John Barsness*

November–December 2007

Venison Alchemy. Slow, moist cooking can turn even the toughest deer, pronghorn, or elk cuts into delicious, fork-tender entrees. *By Tom Dickson*

The Amazing Saga of Montana's Elk. It begins with abundance, then turns to greed and waste, then continues with one of the most remarkable wildlife management success stories in North America. And the current chapter is perhaps most interesting of all. *By Sam Curtis*

Why We Hunt. Explaining the deep-seated need for game meat, outdoors companionship, and just gittin' out amongst 'em. *By John Madson*

Follow That Bear. How biologists track grizzlies, wolverines, and other elusive wildlife through the most remote reaches of Montana. *By Becky Lomax*

The Quiet Waterfowler. A shirt, a newspaper, a limit of mallards. *By Tom France. Illustrations by Mike Moran*

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Great gray owl

Strix nebulosa

By Sam Curtis

While looking for elk sign in the knee-deep snow at the edge of a forest clearing in the Gallatin Range, I noticed a lodgepole pine, its top apparently snapped off by strong winds. Then the top of the broken tree rotated, becoming a feathered head with a facial disk studded with two piercing yellow eyes. The gaze of the great gray owl stopped me midstride.

For the next 15 minutes, I forgot all about elk and stood dead still watching the reclusive owl deliberately scanning the surrounding terrain. Finally it dove from its perch and plunged into the snow for a rodent burrowing below the surface. The sight remains one of my most memorable wildlife encounters.

IDENTIFICATION The great gray is North America's largest owl. The female has a wingspan of 4.5 feet and stands 28 inches tall. The bird weighs only about 2 pounds, so most of its mass is just feathers. Males are somewhat smaller but otherwise similar in appearance: mostly gray colored and with a relatively long tail and no ear tufts on the head. The great gray's most striking feature is a huge facial disk covering the front of the head containing concentric gray circles surrounding bright yellow eyes. At the bottom edge of the disk is a white "moustache" strip broken by a black "bow tie" below the yellow beak.

The great gray makes territorial announcements and calls its mate with an appropriately owlish *whoo-whoo-whoo*, repeated softly in a low pitch every 15 to 30 seconds, usually at night.

The great gray owl is also known as the spectral owl, perhaps for the way it flies silently through the forest at night or its haunting alarm cry. The scientific name *nebulosa*, from the Latin *nebulosus*, meaning "misty" or "foggy," also suggests ghostlike characteristics.

RANGE AND HABITAT Montana is one of the few states in the lower 48 where great gray owls live. Other than Canada and Alaska, where it is common, the species is found only in Minnesota, the central Sierra Nevadas, and the northern Rockies as far south as Yellowstone National Park. The bird is also found throughout northern Asia and Europe, where it is often known as the Lapland owl.

In Montana, the great gray is found in mixed conifer forests interspersed with swamps, meadows, and small clearings where bordering trees and snags provide hunting perches.

HABITS The great gray's exceptional eyesight and hearing allow it to detect mice, voles, and other small animals that comprise its diet. Though this owl sometimes hunts on the wing, flying close to the ground, it usually plays a waiting game, surveying the open area below a hunting perch for sounds and movement.

Even rodents burrowing a foot beneath the snow are vulnerable to the owl's sharp senses. A great gray will plunge talon first into deep snow for a meal, leaving spread wing prints and a few drops of blood as evidence of the attack.

These owls are a resident species in Montana, moving around during the year in search of food. Studies in Wyoming show their average home range to be roughly 1.6 square miles. The raptors tend to move from higher to lower elevations when prey is scarce and snow is deep. Where prey is abundant, great gray owls may congregate in high densities of up to five pairs per square mile. Although they tolerate other great grays in foraging areas, the owls are aggressively territorial around nesting sites.

BREEDING Nesting begins in March and April when the male offers the female food from his beak, which she accepts with her eyes closed. Then the male shows the female several nesting possibilities in abandoned hawk or raven nests or hollowed-out clumps of dwarf mistletoe. Once the female chooses a nest, the pair often line it with moss or deer or elk hair.

The female lays an average of three eggs, which she incubates for 28 days. The male provides food, which the female shreds to feed the young. Within three or four weeks, the fledglings are leaving the nest and climbing around in the nesting tree. They can fly by eight weeks but stay near the nest and parental care for two or three months after that.

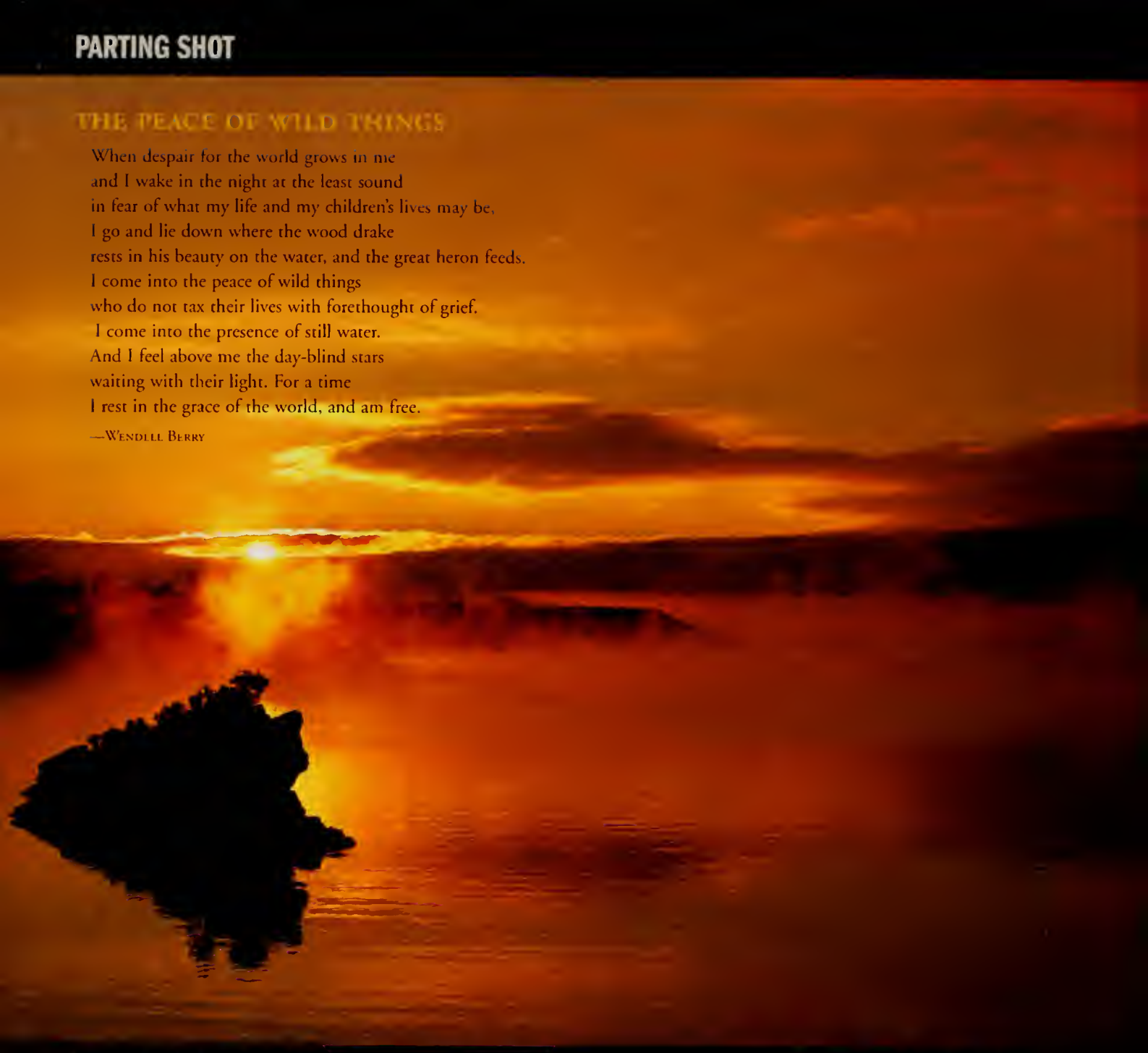
STATUS Great gray owl populations appear to be healthy within their range in Montana and throughout North America.

Writer Sam Curtis lives in Bozeman.

THE PEACE OF WILD THINGS

When despair for the world grows in me
and I wake in the night at the least sound
in fear of what my life and my children's lives may be,
I go and lie down where the wood drake
rests in his beauty on the water, and the great heron feeds.
I come into the peace of wild things
who do not tax their lives with forethought of grief.
I come into the presence of still water.
And I feel above me the day-blind stars
waiting with their light. For a time
I rest in the grace of the world, and am free.

—Wendell Berry



Canyon Ferry Lake at sunrise. Photo by Chuck Haney.

TOP HONORS
For the last three years, *Montana Outdoors* has been ranked among the nation's top state conservation magazines by the Association for Conservation Information.

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